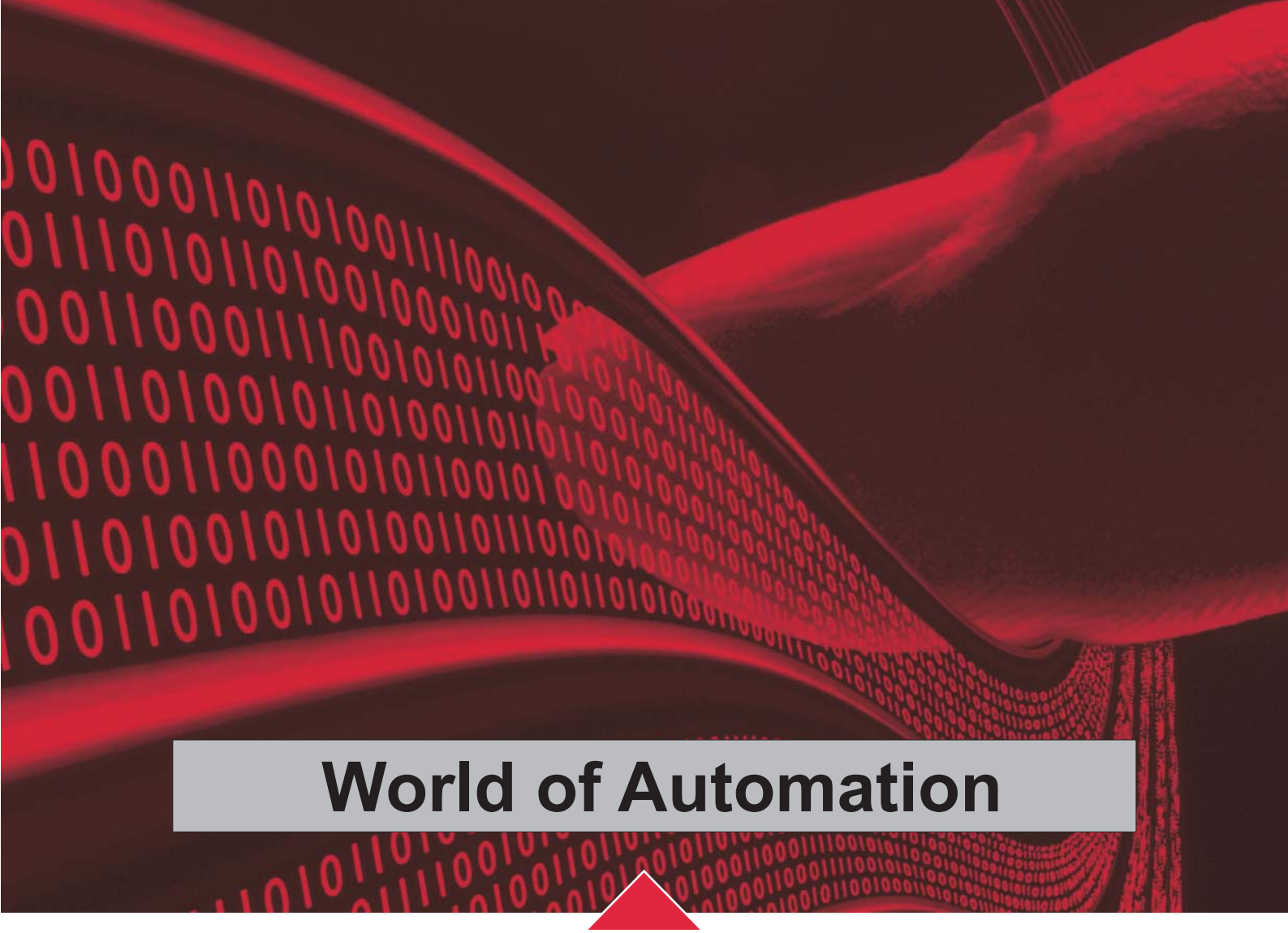

World of Automation

Chapter 1: General information

HIQUEL®
HIGH QUALITY ELECTRONICS

www.hiquel.com

HIQUEL

HIGH QUALITY ELECTRONICS

new dimension in time ...

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We reserve the right to alter specifications in the interests of technical progress.

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CATALOGUE GUIDE

- number of closing contacts
- number of changing contacts
- DIN-Rail mounting
- 11 pin plug in
- timer functionality
- real time clock
- protection class
- temperature measurement function
- PTC (Thermistor) measurement function
- 3 phase measurement function
- diode array
- thyristor output
- RS232 host connectivity
- RS485 bus connectivity
- CAN connectivity
- Ethernet connectivity
- number of inputs
- number of outputs
- voltage measurement function
- current measurement function
- liquid level control
- speed control
- FBR room controller
- converter
- Arithmetic functions
- UL certification
- CE conformity

programmable controllers
text displays
expansion modules
network data communication
alarm inform control about GSM

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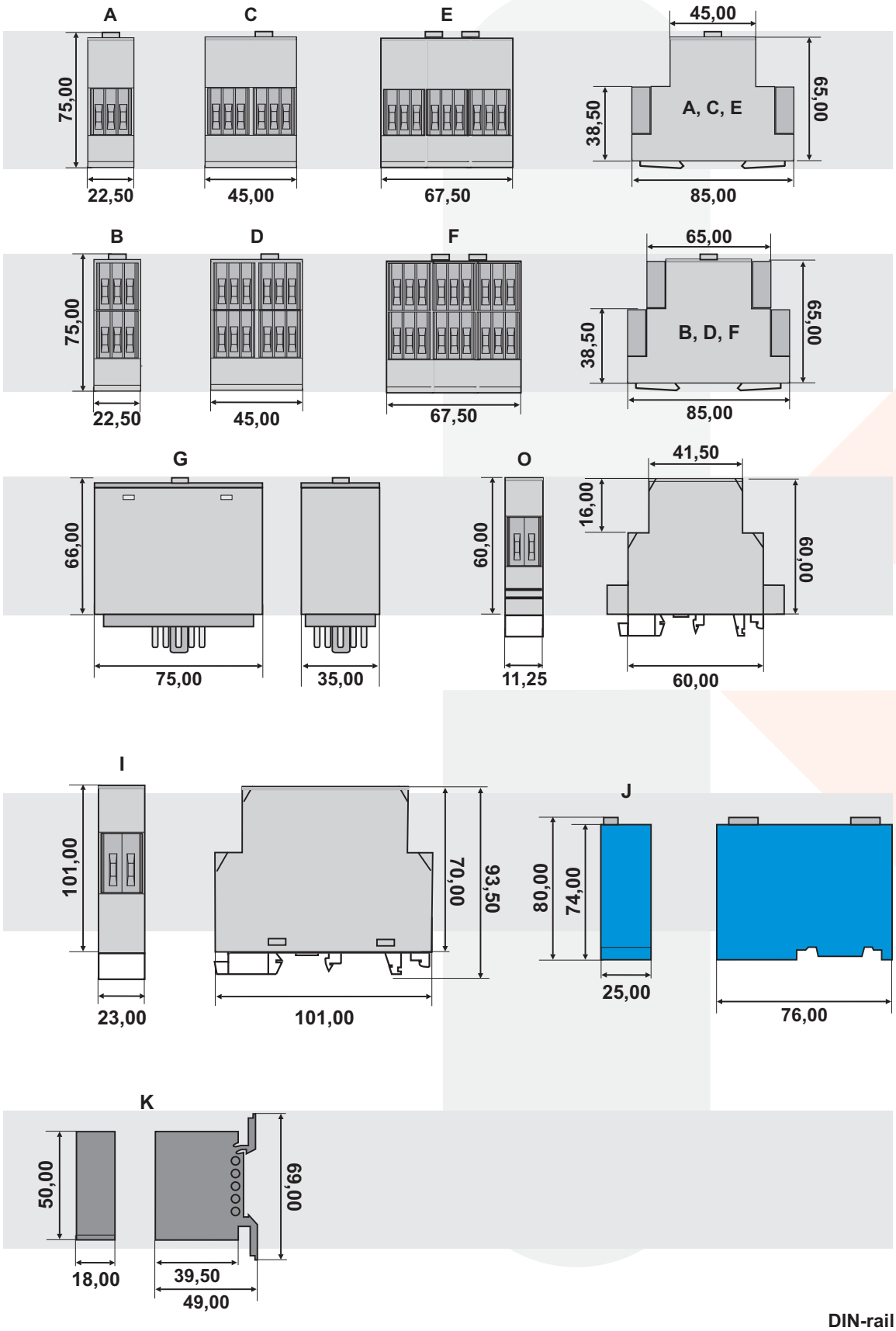
housing types



DIN-rail
terminals: IP20
housing: IP50

all dimensions in mm

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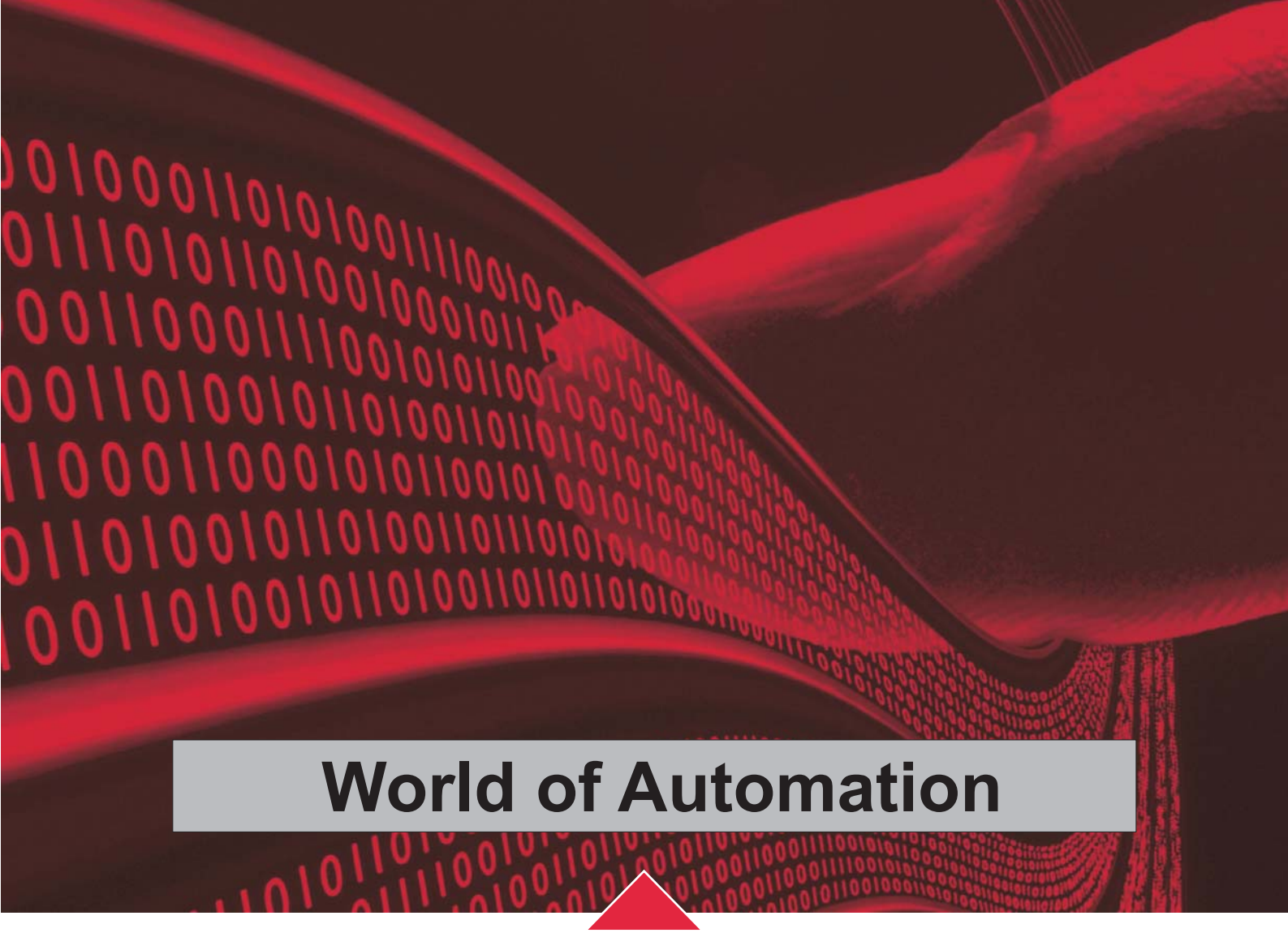

World of Automation

Chapter 2: SLS-500 Series

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2 Chapter 2: SLS-500 Series

.01 INFO programmable controllers
.02 INFO programming
.03 INFO SLS-500 series
.04 INFO control-regulate with SLS-500
.05 INFO automation with SLS-500
.06 INFO SLS-500-Configurator
.07 INFO remote control with SLS-500
.08 INFO compact with SLS-500
.09 INFO module overview SLS-500
.10 SLS-510/SLS-520 Starter Kits
.11 SLS-510/SLS-520 compact controls
.12 SLS-500-CAN / SLS-500 Starter Kits
.13 SLS-500-CAN base module
.14 SLS-500 base module
.15 SiConfig - Software
.16 TERM4
.17 SLS-8207

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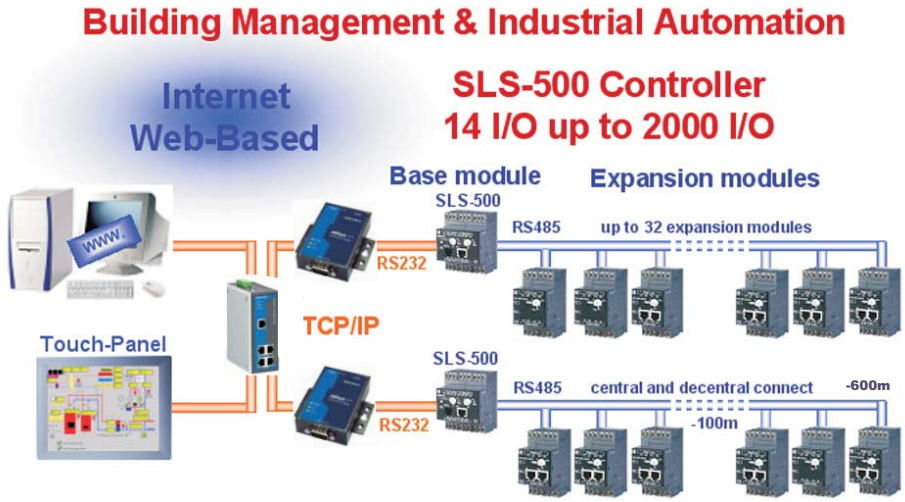
Structured control

Basically there are two different PLC-series in the HIQUEL product range, the SLS-86 and the SLS-500. Both are modular concepted and can be used as central and/or distributed PLC systems. Due to the fact that a base module can be combined with a broad range of expansion modules both PLC series are very flexible and can therefore fit individual demands. For both series there are also compact controls available.
The SLS-86 and the SLS-500 are programmed without special software knowledge but with different software programs.

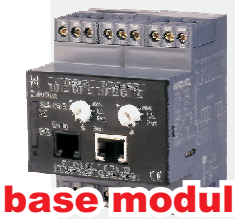
SLS-500 Series: complete bit, analogue and text processing

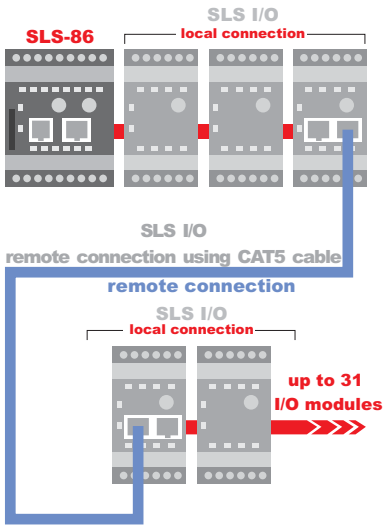
- various SLS-500 base modules (SLS-500-CAN, SLS-500)
- broad range of SLS-500 expansion modules (local and remote versions of all modules available)
- SLS-500 compact modules (SLS-510, SLS-520)



SLS-86 Series: bit processing

- SLS-86 base modules
- broad range of SLS-86 expansion modules (local and remote versions of all modules available)
- SLS-86 compact module -HI86





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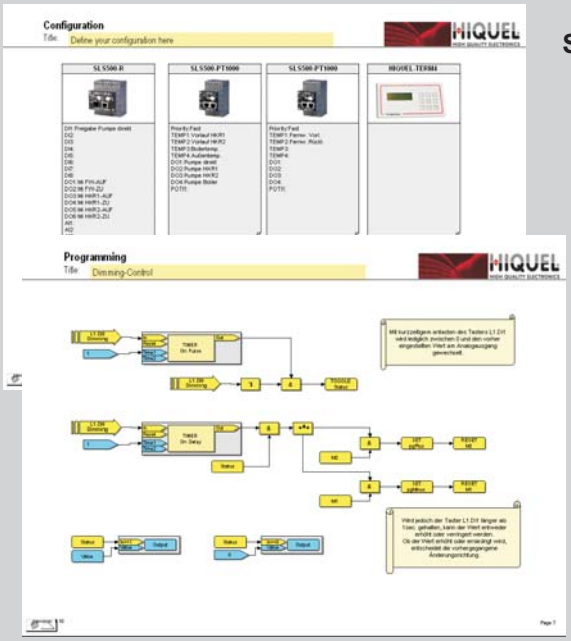
Programming

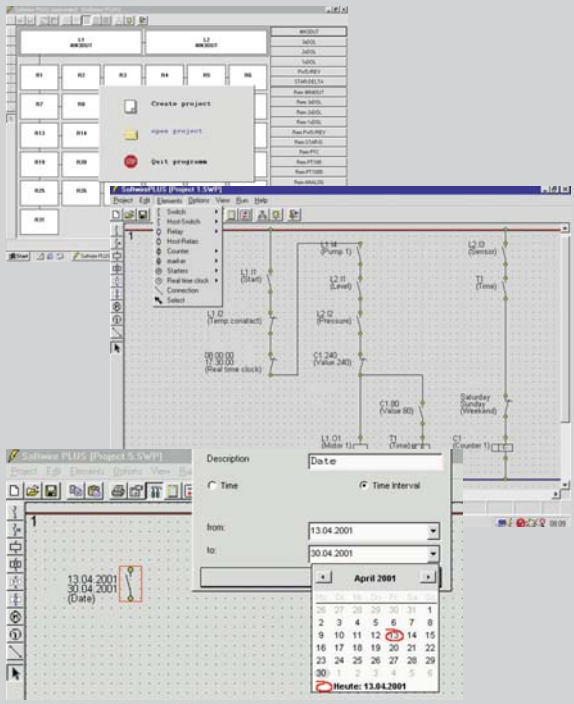
SLS-500-Configurator



Series: SLS-500, SLS-500-CAN, SLS-510,SLS-520

- SLS-500-Configurator software is simple to use with a user-friendly graphic configuration which cuts costs to a minimum and is the basis for efficient processing of building management and industrial automation tasks.
- Complete analogue, bit and text processing.
- Easy adjustment by integrated scaling and arithmetic operations.
- Pre-programmed function modules (PID, Speed etc.)
- Easy RTC+Calendar programming: time/date/year...
- Online visualisation and simulation of functions
- Language selection by mouse click - German or English

SoftwirePLUS/SoftWIRE



Series: SLS-86, HI-86

- Comfortable programming via wiring (ladder) diagram (SoftwirePLUS) with online visualisation of I/O´s, automatically creates complete paper documentation.
- Optimised display layout and automated address allocation for easy handling.
- No limitation of program elements on one ladder rung. Series and parallel circuit of contacts and coils.
- Latching contact, bistable, set and reset function, memories, star-delta-run-up, time functions...
- Software features: easy online visualisation and simulation of functions.
- Language selection simply by mouse click - German, English, Italian, Spanish, French...

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SLS-500 Series

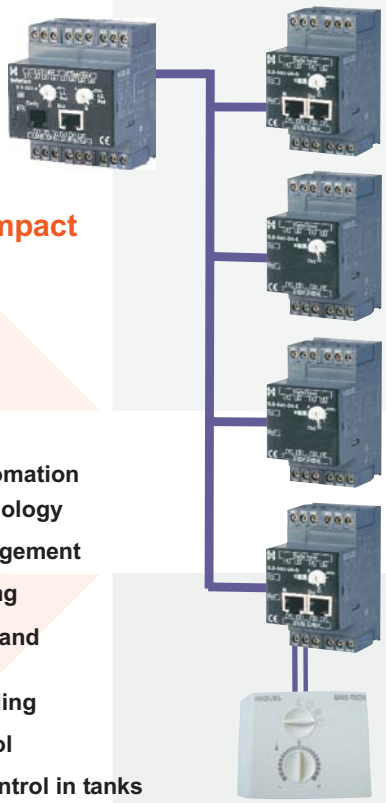
Complete bit, analogue and text processing

The PLC-series SLS-500 is a central and/or distributed PLC system with modular concept. The SLS-510 and the SLS-520 are compact controls of the SLS-500 series.

The base module allows easy and cost-effective communication with up to 32 different expansion modules over a bus length of up to 600m. The modules can be connected either locally by recessed side connectors for side by side DIN rail mounting or remotely via CAT5 cable.

SLS-500 base modules

- SLS-500-CAN
- SLS-500



SLS-500 compact modules

- SLS-510
- SLS-520

Area of use:

- industrial automation
- process technology
- building management
- air conditioning
- window, door and gate control
- material handling
- lighting control
- liquid level control in tanks and pumping systems
- bespoke systems

SLS-500 expansion modules

Connection: local and remote versions of all modules available

- digital input modules 24Vdc or 100-240Vac
- digital output modules, relays, transistor or photomos
- analogue I/O modules 0-10V or 0-20mA
- lighting dimmer module with 1 dimmed output 230V~
- temperature detection modules for Pt100- and PT1000 sensors
- 16bit analogue input modules; 0-10V or 0-20mA
- incremental encoder input with prescaled output pulses
- open protocol RS232/RS485 interface modules
- interface modules for GSM (text messaging) modem
- room temperature detection modules with 4 inputs
- room temperature controller

base module

local (C)

remote (D)

possible connections:

Modbus

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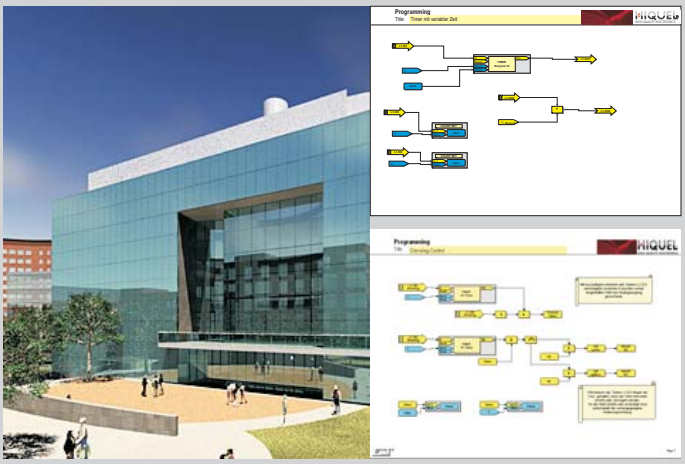
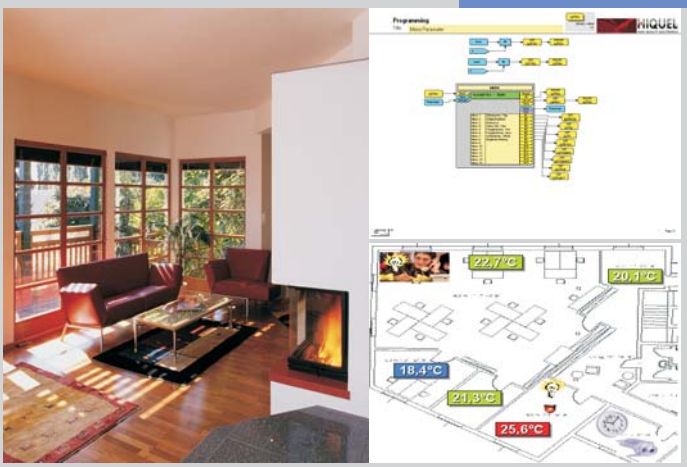
Control - Regulate

Building technology



- SLS-500 modules can be locally or remotely connected to an internal RS485 network in an easy and cost-effective way.
- SLS-500 can be integrated within standard applications (light switches, twilight sensors, temperature sensors, printers, modems, displays etc.)
- Simple wiring of solar heating controls, building controls, heating systems and alarms.
- Open protocol communication and networking is a standard feature of the SLS-500 product line.

Heating-Ventilation-Air Conditioning



- Simple HVAC control with pre-programmed PID controller and remote room control modules (remote control).
- SLS-500 modules are ideal to re-equip office buildings, schools, greenhouses etc.
- SLS-controls are perfectly suited for contracting companies: bespoke building management systems
- Comfortable and economical: HVAC, light control, solar heating systems - all controlled from one system

Control-Monitoring-Alarming

- Open protocol communication and networking is a standard feature of the SLS-500 product line.
- The models offer perfect access control: camera monitoring, identification systems etc.
- SLS-500 modules are ideal to re-equip office buildings, schools, greenhouses etc.
- The base module provides cost-effective communication with up to 32 extension modules over a bus length of maximum 600m.

X01.00

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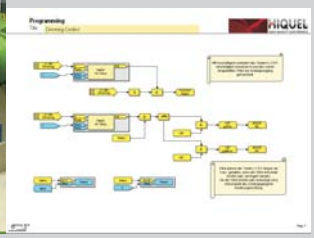
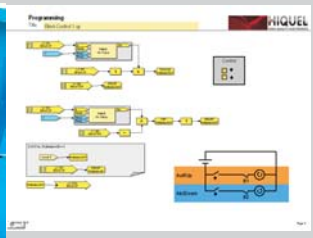
Automation

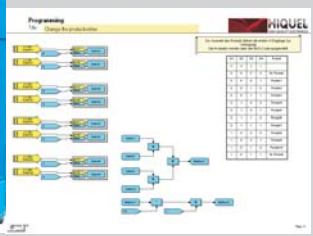
Process technology



- The modular structure allows system changes to suit application alterations.
- Suitable for process control with complex functions processing large data volumes, e.g. analogue values, nominal values, meter readings or time parameters.
- Integration: printers, scanners, barcode scanners, identification systems, measuring systems, encoder modules…

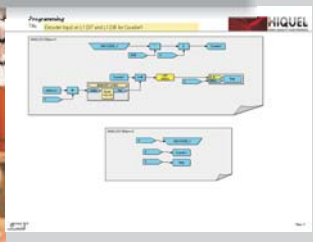
Machine control

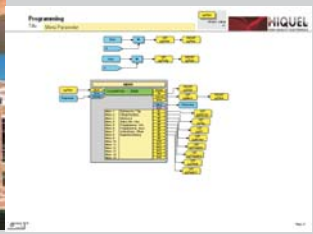




- SLS-500 modules are suited to display, compare and calculate analogue values and texts.
- Parameters or required values are changed directly on the text display or via PC.
- Installation in low profile control boxes and switch boxes within the machine is possible through the modular concept.
- Flexible program exchange by external memory card.

BMS applications





- SLS-500 modules can be combined to fit various requirements for digital thermostats GSM modems, scanners, access systems…
- Electrical wiring installations of SLS-Controllers are highly cost-efficient.
- Assembly of large networks is possible with SLS-Controller.
- Open protocol communication and networking is standard.

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Programming

SLS-500-Configurator uses a totally new approach offering amazing possibilities for programming PLC's.The whole SLS-500 Product series is programmed with SLS-500-Configurator in Microsoft Power Point® with full integration to other Microsoft Office applications!

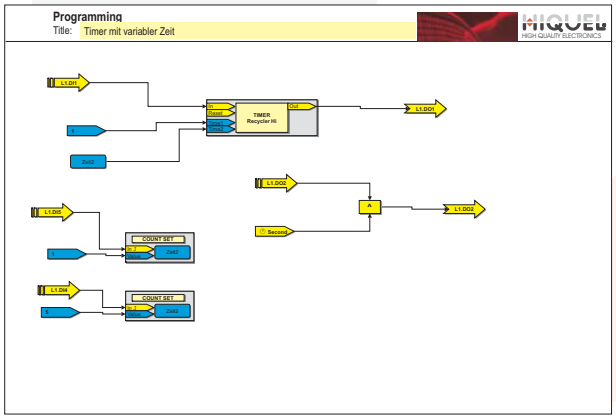
Series: SLS-500, SLS-500-CAN, SLS-510, SLS-520

For the first time the powerful 'SLS-500 Configurator' offers a graphic environment in MS PowerPoint for configuration and programming. Microsoft Office is the most widely used software package throughout the world and handling, as well as all hot keys of the individual Office components such as Word, Excel or Access are identical between applications. Therefore, the learning curve with the 'SLS-500 Configurator' software is dramatically reduced compared to a proprietary software solution.

The ‚SLS-500-Configurator' software combines PowerPoint's graphic abilities with a user-friendly graphic computer language supporting full bit-, analogue-, and text processing. Of course all popular elements, included in common PLC programming systems, such as flags, inputs and outputs, counters, time elements and edge detection functions are integrated in the software. However, there are special symbols for those graphic parts of the program.
As normal for PowerPoint, text notes, Word documents, Excel files, digital pictures and even digital videos can be embedded to create comprehensive documentation of your plant while programming your PLC!
For documentation purposes simply print out the project or export it to other office programs. For example the contactor configuration of the wiring diagram, triggered by a special part of the software can be integrated. An audio file that contains a description of the operational sequence dictated by the programmer can be added as well as a digital video showing the correct mode of machine operation to guarantee best basic knowledge for the maintenance staff and future programmers when modifications are required! It is also possible to embed whole documents. For example with a simple mouse click the user manual of a frequency converter is opened as PDF file, the entire wiring diagram or the operating guidelines are opened in Word format. Of course, parts of the program can be optionally printed out or exported easily to other Microsoft Office programs.
A special feature of PowerPoint is the ability to save all multimedia information in one single file. Therefore, to reinstall the program only this file is needed, as a compiler, which basically is an integrated simulator, an online load module and an online testing module are also integrated in this PowerPoint file. No additional software is needed to be able to work with the 'SLS-500-Configurator'!

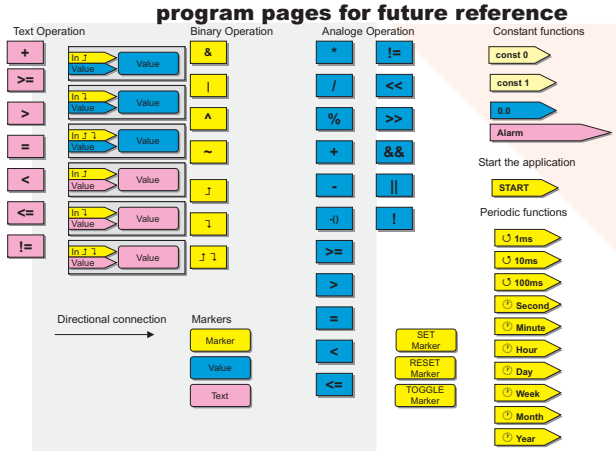
System configuration:

up to 32 I/O modules possible



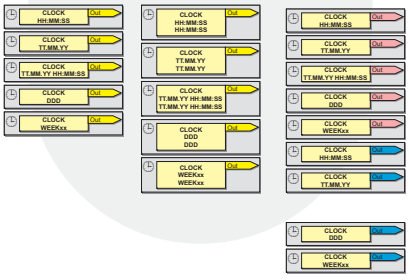
Simple-to-use graphic style flow diagram software:

automatic addressing, drop down symbol library. Text, photo, audio & video notes on program pages for future reference



Real time clock with calendar function:

days of the week, weeks of the year, days, months, years, date, time



All program element addresses are automatically allocated and it is simple to adapt the screen and printout to personal needs.

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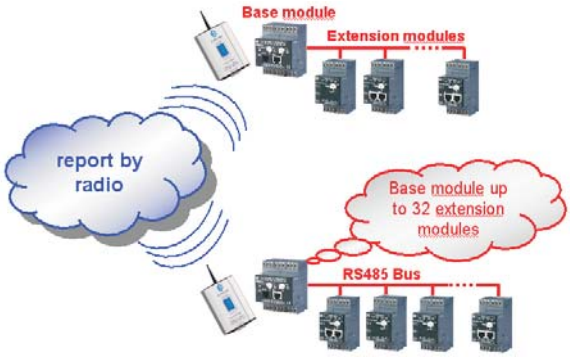
Remote

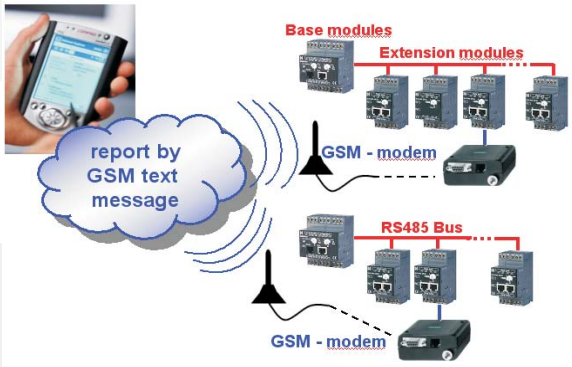
RADIO

- report
- control
- alarm



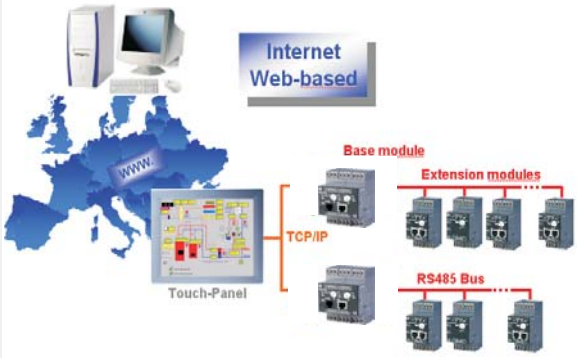
GSM

- report
- control
- alarm



INTERNET

- WEB based
- Intranet



remote control and remote report

in

0-10V

out

DIN

RS485

RS232

RTC

9*9=81

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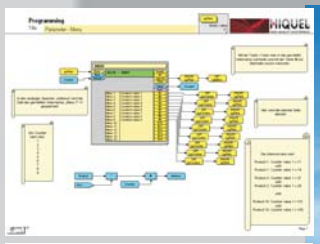
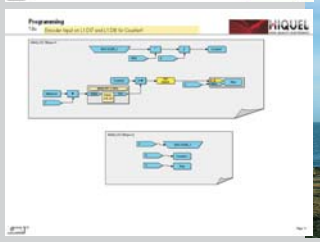
Compact modules

SLS-510 and SLS-520

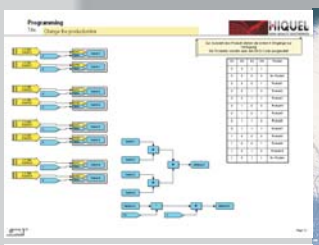
SLS-510 100-250Vac

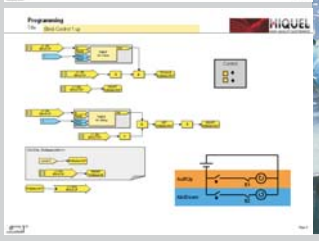
- Ideal in buildings for lighting and HVAC systems, and in industrial applications such as conveyor belts, hydraulic systems, pumping systems, waste handling...
- 10A (SLS510) 5A (SLS520) relay outputs
- Latching contacts, bi-stable, set and reset functions, memories etc.
- The software offers easy online visualisation and simulation of functions.
- Simple documentation (printing).
- For AC and DC supply
- Complete bit and text processing.
- No limitation of circuits or function blocks.
- Manual settings on the module by means of potentiometers on the front-plate.
- Easy program exchange with memory card (SLS520).
- Simple combination of all time data, e.g. RTC time, period, weekdays, calendar week, days, months, years, date and time.

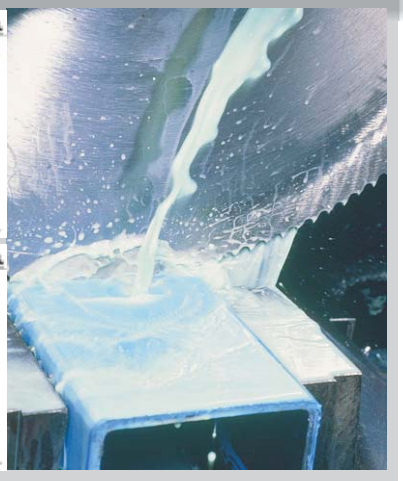




SLS-520 20-250Vac/dc







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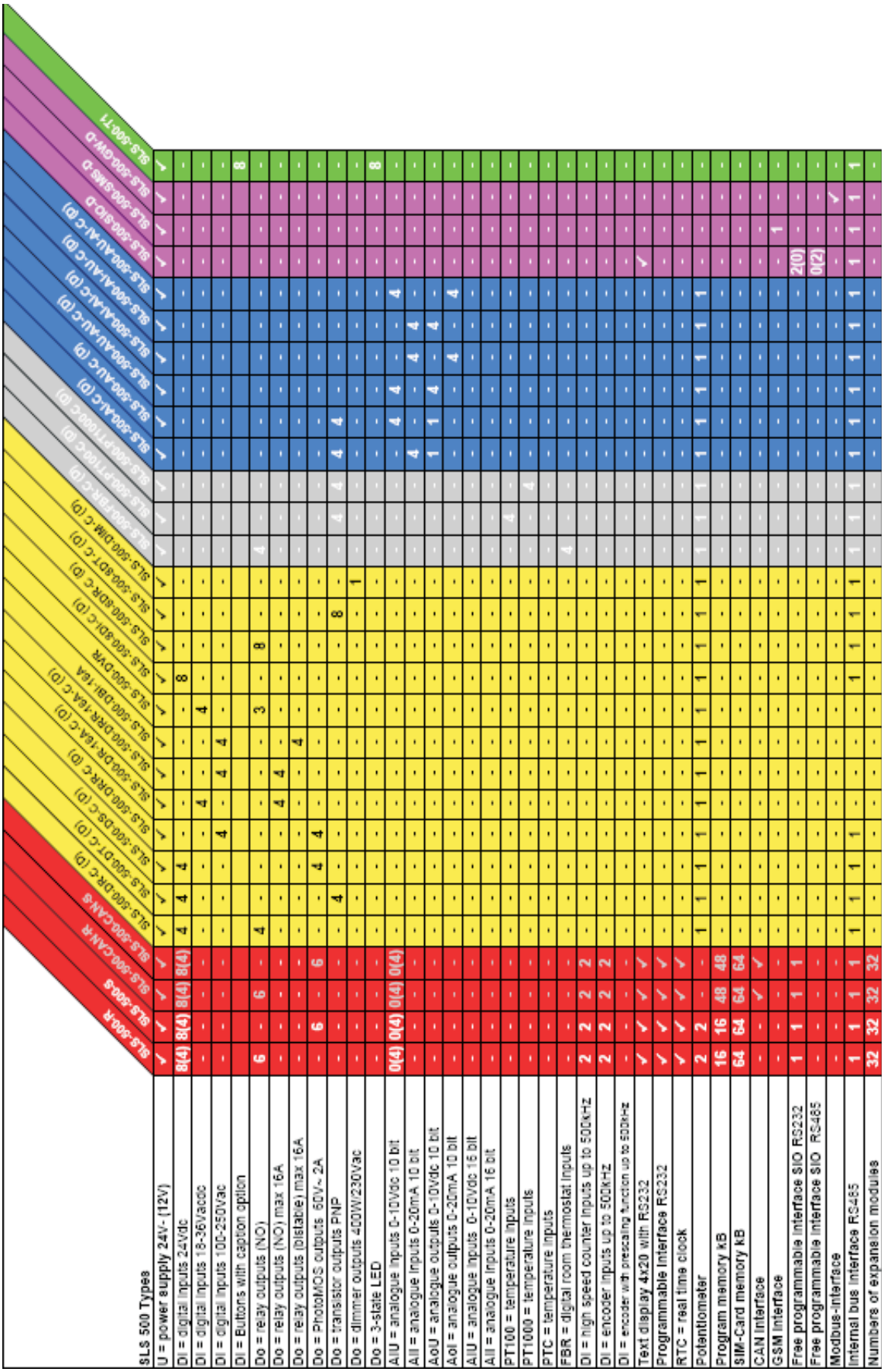
SLS-500 modules

overview



SLS 500 Types	SLS-500-R	SLS-500-S	SLS-500-CAN-R	SLS-500-CAN-S	SLS-500-DR-C (D)	SLS-500-DT-C (D)	SLS-500-DS-C (D)	SLS-500-DRR-C (D)	SLS-500-DRR-16A-C (D)	SLS-500-DBI-16A-C (D)	SLS-500-DVR	SLS-500-BDI-C (D)	SLS-500-BDR-C (D)	SLS-500-BDT-C (D)	SLS-500-DIM-C (D)	SLS-500-BRR-C (D)	SLS-500-BRT100-C (D)	SLS-500-BRT1000-C (D)	SLS-500-AU-C (D)	SLS-500-AU-E-C (D)	SLS-500-AAU-C (D)	SLS-500-AAU-E-C (D)	SLS-500-AI-C (D)	SLS-500-SIO-D	SLS-500-SMS-D	SLS-500-CW-D	SLS-500-T1
U = power supply 24V- (12V)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DI = digital inputs 24Vdc	8(4)	8(4)	4	4	4	4	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DI = digital inputs 18-36Vacdc	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DI = digital inputs 100-250Vac	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DI = Buttons with caption option																											8
Do = relay outputs (NO)	6	-	4	-	-	-	-	-	3	-	8	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
Do = relay outputs (NO) max 16A	-	-	-	-	-	-	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Do = relay outputs (bistable) max 16A	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Do = PhotoMOS outputs 60V~ 2A	-	6	-	6	-	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Do = transistor outputs PNP	-	-	4	-	-	-	-	-	-	-	-	8	-	-	-	4	-	-	4	4	-	4	4	-	-	-	-
Do = dimmer outputs 400W/230Vac	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Do = 3-state LED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	-	4	4	-	8
AIU = analogue inputs 0-10Vdc 10 bit	0(4)	0(4)	0(4)	0(4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-
AII = analogue inputs 0-20mA 10 bit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	4	-	4	-	4	-	-	-	-
AoU = analogue outputs 0-10Vdc 10 bit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	4	-	4	-	-	-	-	-
AoI = analogue outputs 0-20mA 10 bit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	4	-	-	-	-
AIU = analogue inputs 0-10Vdc 16 bit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AII = analogue inputs 0-20mA 16 bit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PT100 = temperature inputs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
PT1000 = temperature inputs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-
PTC = temperature inputs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FBR = digital room thermostat inputs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
DI = high speed counter inputs up to 500kHz	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DI = encoder inputs up to 500kHz	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DI = encoder with prescaling function up to 500kHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Text display 4x20 with RS232	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-	-
Programmable Interface RS232	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RTC = real time clock	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potentiometer	2	2	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-
Program memory kB	16	16	48	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SIM-Card memory kB	64	64	64	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CAN interface	-	✓	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GSM interface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Free programmable interface SIO RS232	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2(0)	-	-
Free programmable interface SIO RS485	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0(2)	-	-
Modbus-interface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-
Internal bus interface RS485	1	1	1	1	-	-	-	1	1	1	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1
Numbers of expansion modules	32	32	32	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

base and expansion modules SLS-500 / SLS-500-CAN

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HIGH QUALITY ELECTRONICS

Starter Kits SLS-510, SLS-520

overview

all you need to get you going - a starter kit:

SLS-510

includes:

- **SLS-510-R 100-250 Vac 10A**
- **serial interface cable (programming cable)**
- **CD-ROM Automation Software**
- **input simulator**
- **manual**

SLS-520

includes:

- **SLS-520-R 20-250Vac/dc**
- **serial interface cable (programming cable)**
- **CD-ROM Automation Software**
- **input simulator**
- **manual**
- **SIM-Card (memory card)**

Programming with SLS-500-Configurator:

Programming without special software knowledge, suitable for small 8/4 I/O applications.
The **SLS-510** and **SLS-520** are compact programmable (intelligent) relays that can be used in many fields including **industrial control** and **automation,** and **machinery control.**
The **SLS-510** has 8 digital inputs and 4 relay outputs, the **SLS-520** has 8 digital inputs and 6 relay outputs. The user program memory for both modules is 16 kB. The **SLS-520** additionally features a SIM Card for easy program exchange as well as module to module data transfers.
SLS-510 as well as **SLS-520** are **programmed with SLS-500-Configurator** in Microsoft PowerPoint, with full integration to other Microsoft Office applications. For more detailed information please refer to page 1:06.
The **Real Time Clock (RTC)** can be easily programmed for point of time switching, (to perform a function at a fixed time/date) or time interval switching, (to perform a function between two times, dates, weeks, years etc). Days of the week, weeks of the year, days, months, years, date and time can be easily combined.
Analogue values can be set using the external potentiometers on the front plate or by PC.
The analogue functions are used to monitor and evaluate different levels, pressures or temperatures. With the analogue outputs you can control the rpm of a motor or the climate of a room and perform many other functions.
SLS-500-Configurator features on-line monitoring, simulation & status display of all I/O's and internal program elements on the PC. Programs can be simulated without a module connected.
It also automatically creates **complete paper documentation.**
All program element addresses are automatically allocated and it is simple to change the screen and printout.

Ordering information

part no	
SLS-510-R-Starter Kit	SLS-510-R +Automation Software + download cable + manual + input simulator
SLS-520-R-Starter Kit	SLS-520-R + Automation Software + download cable + manual + input simulator + SIM Card

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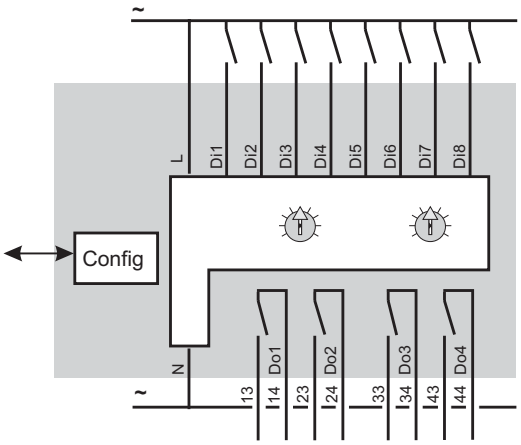
SLS-510, SLS-520

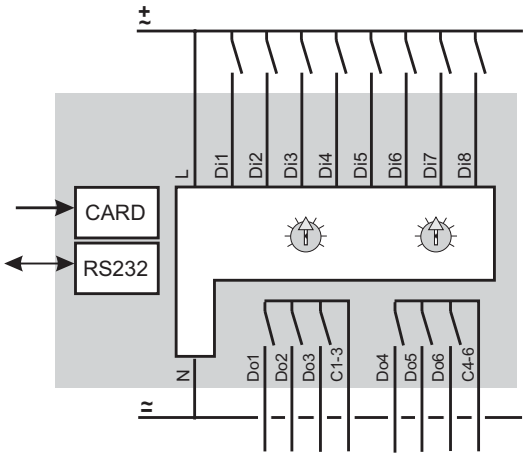
overview

- **compact programmable relay module**
- **supply voltage 100-250V~ (SLS-510), 20-250 V~= (SLS-520)**
- **8 digital inputs 100-250V~**
- **4 SPNO outputs, max. 10A (SLS-510), 6 SPNO outputs, max. 5A (SLS-520)**
- **RS232 port for programming/monitoring (SLS-520)**
- **Memory Card for simple program transfer (SLS-520)**
- **LED indicators for inputs and outputs**
- **2 potentiometers for timers and analogue values**
- **16kB user-program memory**
- **32 timers, 32 counters**
- **real time clock (RTC) with calendar function**
- **67.5mm DIN rail mount housing**
- **graphical programming with 'SLS-500-Configurator' in Microsoft PowerPoint**

SLS-510:



SLS-520:



specification

supply voltage	SLS-510	100-250V~
	SLS-520	20-250Vac/dc
power consumption	1W nominal	
output relay specification	SLS-510	max 10A 250V~
	SLS-510	max 5A 230V~
Ue/Ie AC-15	120V/5A	240V/4A
Ue/Ie DC-13	24V/4A	
expected life time	SPNO	
mechanical	1 x 10^7 operations	
electrical	1 x 10^5 operations	
input specification	SLS-510	100-250V~
	SLS-520	24V= max 5mA
program memory	16kB	
protection class	terminals	IP20
	housing	IP50
screws	pozidrive 1	
screw tightening torque	0,6..0,8 Nm	
weight	210g	
dimensions	67.5 x 85 x 75mm	
operating conditions	-15 to 55°C non condensing	

*EN 60947-5-1 VDE 0435

ordering information

part no	supply	input	inp. galv. iso. *	output	outp. galv. iso.*	housing types
SLS-510-R	100-250V~	8x 100-250V~	no	4x SPNO	yes	E
SLS-Std-RS232	download cable					
SLS-520-R	20-250V~=	8x 20-240V~=	no	6x SPNO	yes	E
SLS-Std-RS232	download cable					

* measurement input galvanically isolated from the power supply

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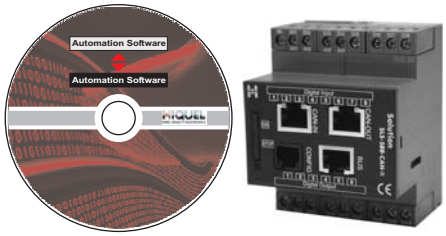
Starter Kits overview

SLS-500-CAN, SLS-500

all you need to get you going - a starter kit:

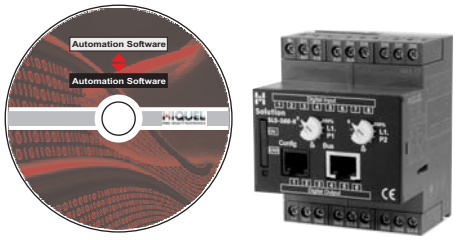
SLS-500-CAN:

- SLS-500-CAN-R 100-24 V= (base module)
- serial interface cable (programming cable)
- CD-ROM Automation Software
- SIM-Card (memory card)
- input simulator
- manual



SLS-500:

- SLS-500-R 100-24 V= (base module)
- serial interface cable (programming cable)
- CD-ROM Automation Software
- SIM-Card (memory card)
- input simulator
- manual



Programming with SLS-500-Configurator:

Programming without special software knowledge, suitable for small (8/6 I/O) and large (up to 250 I/O) applications.
The SLS-500 bases modules are modular programmable (intelligent) relays that can be used in many fields including **industrial control, automation,** and **building management** systems.
The base modules can communicate with up to 32 expansion modules either directly connected **(local)** or via CAT5 cable **(remote)**. It is possible to connect up to 250 I/O over a maximum distance of 600m to one base module.
A broad range of expansion module types is available: including digital I/O, analogue I/O, room controller (FBR), lighting dimmer, temperature inputs, encoder inputs, stepper motor outputs, SMS-Module etc in local and remote versions (see tables on page 01:09 and 01:10).
The base modules of the **SLS-500 product range (SLS-500-CAN, SLS-500)** are **programmed with SLS-500-Configurator** in Microsoft PowerPoint, with full integration to other Microsoft Office applications. For more detailed information please refer to page 1:06.
With **HTPC (Touch Panel)** or **TERM4** you can control or change values, display texts or change and update values, menu structure and SCADA software (HTPC)
The **Real Time Clock (RTC)** can be programmed easily for time switching, (to perform a function at a fixed time/date) or time interval switching, (to perform a function between two times, dates, weeks, years etc). Analogue values can be set using the external potentiometers on the front plate (SLS-500) or by PC. The analogue functions are used to monitor and evaluate different levels, pressures or temperatures. With the analogue outputs you can control the rpm of a motor or the climate of a room and perform many other functions.

ordering information

part no	
SLS-500-CAN-R-Starter	SLS-500-CAN-R + Automation Software + download cable + manual + input simulator + SIM Card
SLS-500-R-Starter Kit	SLS-500-R + Automation Software + download cable + manual + input simulator + SIM Card
SLS-Std-RS232	download cable

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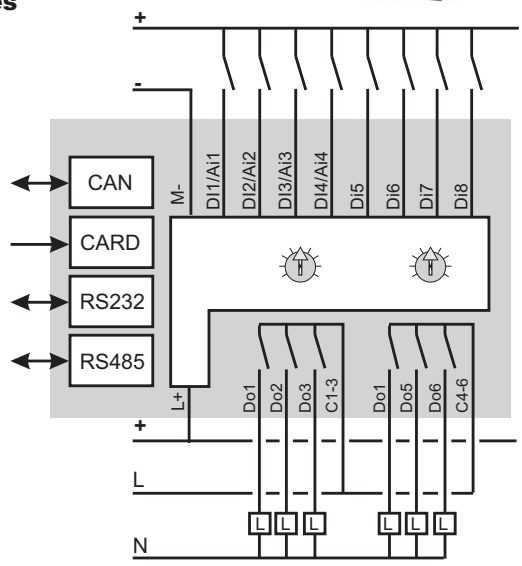
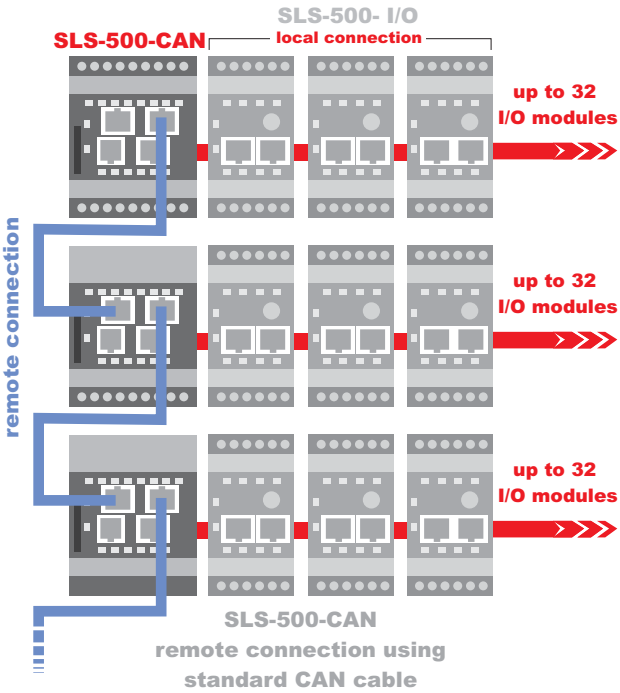
SLS-500-CAN

overview

- system base module
- supply voltage 24V=
- 8 digital inputs 24V=, inputs 1-4 are dual digital/analogue 0-10V
- 6 SPNO outputs, max. 5A
- RS232 interface for programming/monitoring
- CAN Bus port via CAT5
- RS485 port connects up to 32 SLS-500-I/O modules
- LED indicators for inputs and outputs
- 48kB user-program memory
- timers, counters, RTC with calendar function, analogue- and text processing
- 67.5mm DIN rail mount housing
- graphical programming with 'SLS-500-Configurator' in Microsoft PowerPoint





SLS-500-CAN
remote connection using
standard CAN cable

specification

supply voltage	24V= ±10%
power consumption	1W nominal
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
Ue DC-13 photomos	60V~=/2A
expected life time	SPNO
mechanical	1 x 10^7 operations
electrical	1 x 10^5 operations
input specification	24V= max. 5 mA
program memory	64kB
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	210g
dimensions	67.5 x 85 x 75mm
operating conditions	-15 to +55 °C non condensing
resolution	analogue inputs and outputs

*EN 60947-5-1 VDE 0435

ordering information

part no	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-CAN-R	24V=	8x 24V=	no	6x SPNO	yes	E
SLS-500-CAN-S	24V=	8x 24V=	no	6x Photomos	yes	E
SLS-500-CAN-R-4AiU-3AoU	24V=	4x 24V=	no	3x SPNO	yes	E
SLS-500-CAN-R-4AiU-3AoI	24V=	4x 24V=	no	3x SPNO	yes	E
SLS-500-CAN-R-4AiI-3AoU	24V=	4x 24V=	no	3x SPNO	yes	E
SLS-500-CAN-R-4AiI-3AoI	24V=	4x 24V=	no	3x SPNO	yes	E
SLS-500-SIM	SIM-Card memory 64kB					
SLS-500-BUS	bus termination for external I/O modules					

* measurement input galvanically isolated from the power supply

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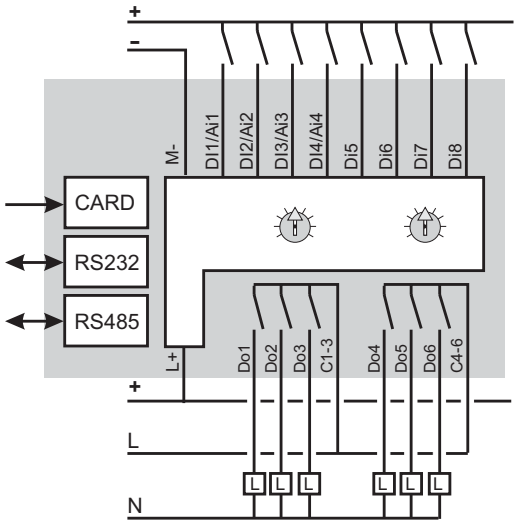
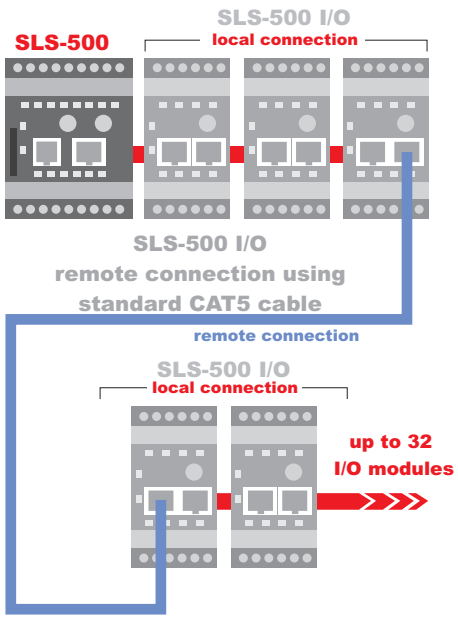
SLS-500





overview

- system base module
- supply voltage 24V=
- 8 digital inputs 24V=, inputs 1-4 are dual digital/analogue 0-10V
- 6 SPNO outputs, max. 5A
- RS232 interface for programming/monitoring
- RS485 port connects up to 32 SLS-500-I/O modules
- LED indicators for inputs and outputs
- 2 potentiometers
- 16kB user-program memory
- timers, counters, RTC with calendar function, analogue- and text processing
- 67.5mm DIN rail mount housing
- graphical programming with 'SLS-500-Configurator' in Microsoft PowerPoint

specification

supply voltage	24V= ±10%
power consumption	1W nominal
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
Ue DC-13 Photomos	60V=/2A
expected life time	SPNO
mechanical	1 x 10^7 operations
electrical	1 x 10^5 operations
input specification	24V= max. 5 mA
program memory	16kB
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	210g
dimensions	67.5 x 85 x 75mm
operating conditions	-15 to +55°C non condensing
	*EN 60947-5-1 VDE 0435

ordering information

part no	supply	input	inp. galv. iso. *	output	outp. galv. iso.*	housing types
SLS-500-R	24V=	8x 24V=	no	6x SPNO	yes	E
SLS-500-S	24V=	8x 24V=	no	6x Photomos	yes	E
SLS-500-R-4AiU-3AoU	24V=	4x 24V=	no	6x SPNO	yes	E
SLS-500-R-4AiU-3AoI	24V=	4x 24V=	no	6x SPNO	yes	E
SLS-500-R-4AiI-3AoU	24V=	4x 24V=	no	6x SPNO	yes	E
SLS-500-R-4AiI-3AoI	24V=	4x 24V=	no	6x SPNO	yes	E
SLS-500-SIM	SIM-Card memory 64kB					
SLS-500-BUS	bus termination for external I/O modules					

*measurement input is galvanically isolated from the power supply

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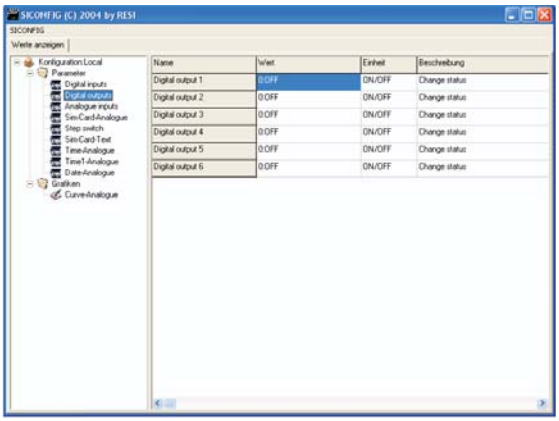
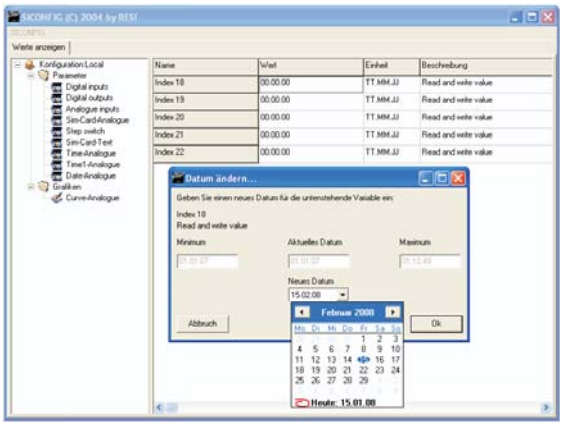
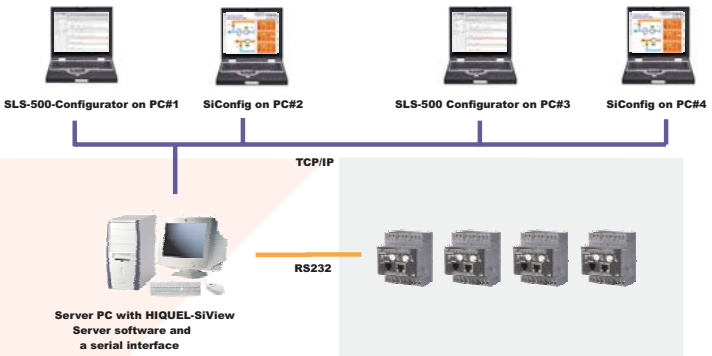
SLS-500-SiConfig

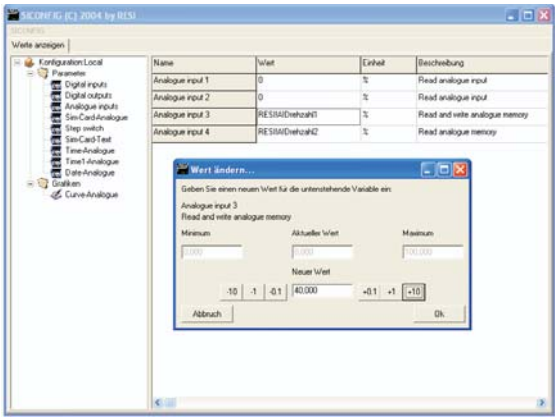
overview

- Communication software for SLS-500
- No licence needed
- Direct communication through RS232 and RS485 or SIVIEWServer
- GRID display
- simply Configuration
- password protection
- easy to use menu tree
- Win98, Win2000, WinXP
- special support for date and time
- Touchscreen capability
- No limits in views or entries
- Increases the capacity of your visualisation software
- Downloadable from www.hiquel.com









ordering information

Please download this program from www.hiquel.com

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TERM4

overview

- **LC backlit display**
- **4 lines with 20 characters each line**
- **character size 3x5mm**
- **9 control keys with symbols**
- **integrated RS232 interface**
- **error tolerant protocol for data transmission**
- **front panel mounting 195x110mm**
- **25mm deep**

The **HIQUELTERM4** text display is designed for low-end visualisation applications and control tasks within the field of industrial automation. A compact, robust case has a liquid crystal display with 4 lines and 20 characters on each line plus a key pad with 9 keys. Each key has a unique symbol. **TERM4** is designed for monitoring alarms, displaying parameters, changing menu structures and displaying messages.

Drivers, and an easy to read manual describing all functions are supplied. **TERM4** is very easily connected to all host systems such as PLCs or PC´s.

TERM4 is suited for use with both our SLS-86 and SLS-500 systems. With the **TERM4** text display it is easy to change the date, time and other settings, without PC, independently of the software.

specification

supply voltage	nominal voltage +10% / -15%
duty cycle	100%
protection class	IP54 (front side)
weight	660g
dimensions	
width	195mm
height	110mm
depth	40mm
operating conditions	-20 to +40°C non condensing

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
TERM4	-	24V= 2W	-	-	-	-	special

* measurement input galvanically isolated from the power supply

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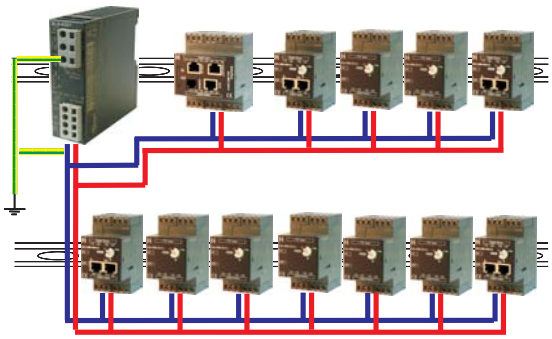
SLS-8207

overview

SLS-8207 power supply

- **power supply 100-240V~**
- **output 24V= 2A**
- **LED-indicaticators for input power supply**
- **LED-indicaticators for output power supply**
- **25mm DIN-rail mount housing**



24V=
M- (mass)
GND (ground)

!!! IMPORTANT !!!

M- must be always grounded.

All converters must be grounded.

All the GND must be linked.

All modules have 24V and M- supply.

specification

power supply	100-240V~ ±20%
frequency	50-60Hz
input voltage	0.24 A / 230V~
buffer time	min.10ms / 230V~
output voltage	24Vdc, ±5%
ripple	<100mVss incl. spikes
output current	2A (48 W)
efficiency	typical 90%
loss power	typical 5W
parallel operated	yes
case	ABS/PC
mounting	DIN-rail mount housing
dimensions	25 x 80 x 76mm
operating conditions	-15 to +50 °C non condensing

ordering information

part no	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-8207	100-240V~	-	yes	24V=	yes	J

* measurement input galvanically isolated from the power supply

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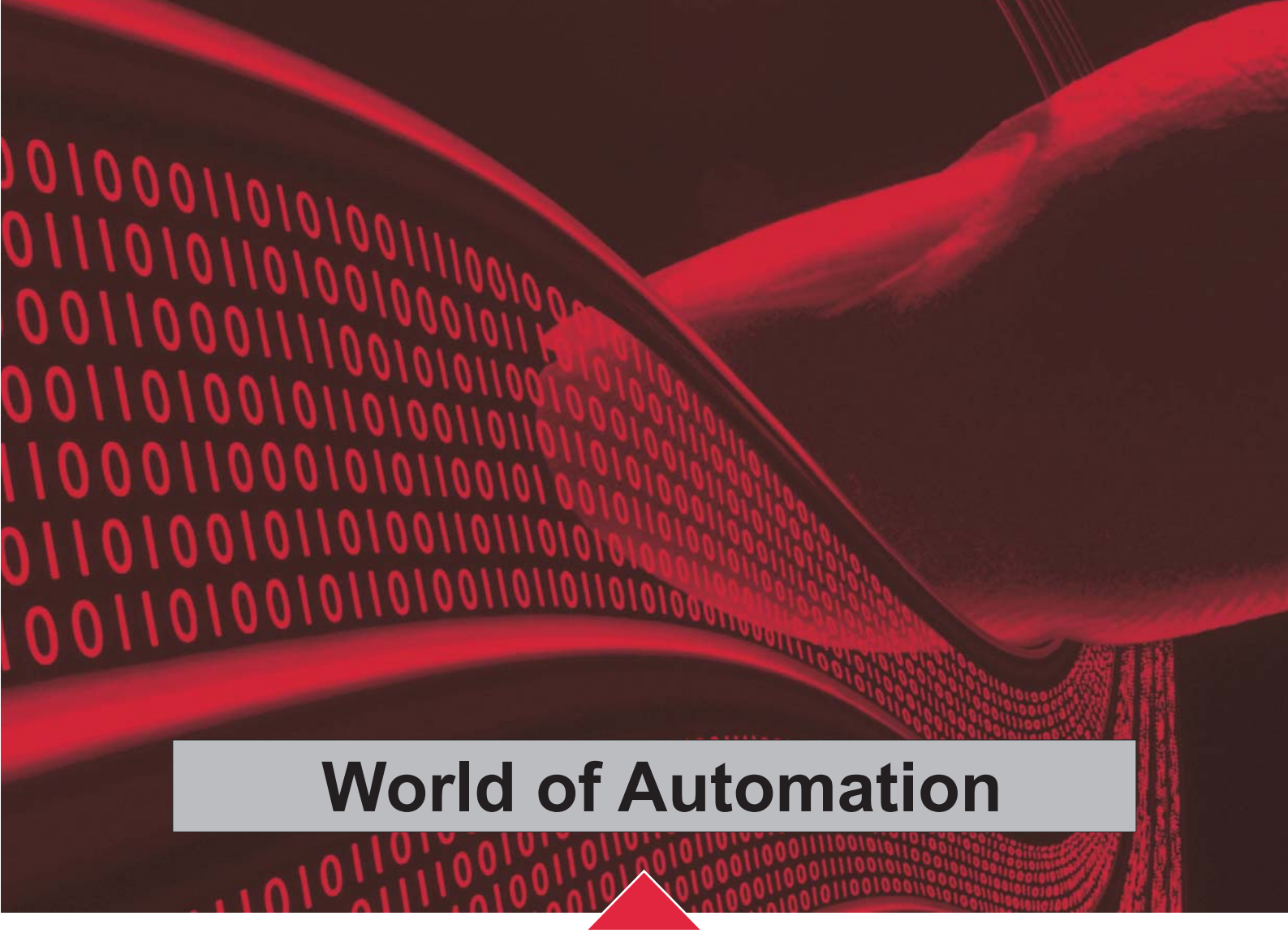

World of Automation

Chapter 3: SLS-500 Extension

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SLS-500-D

overview

- digital I/O expansion module
- supply voltage 24V=
- 4 digital inputs 24V=
- 4 outputs

  SPNO 230V~= max. 5A
  or transistor (PNP) 24V= max. 800mA
  or photomos 60V~= max. 2A
- LED indicators for inputs and outputs
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

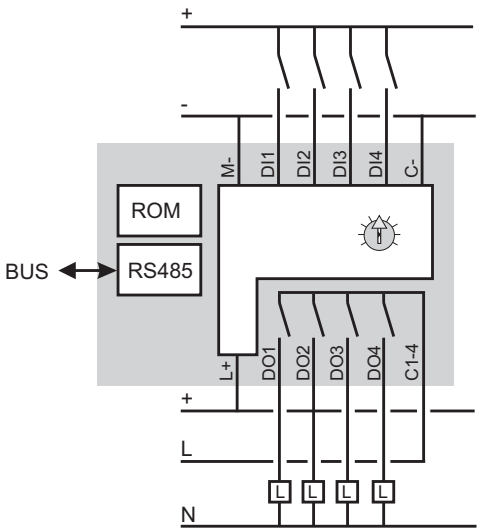
local

remote

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
expected life time	SPNO
mechanical	$1x10^7$ operations
electrical	$1x10^5$ operations
output transistor spec.	max. 800mA 24V= PNP
output photomos spec.	max. 2A 60V=
input specification	24V=
	min. 5 mA
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing

*EN 60947-5-1 VDE 0435



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-DR-C	local	24V=	4x 24V=	yes	4x SPNO	yes	C
SLS-500-DR-D	remote	24V=	4x 24V=	yes	4x SPNO	yes	C
SLS-500-DT-C	local	24V=	4x 24V=	yes	4x trans. PNP	no	C
SLS-500-DT-D	remote	24V=	4x 24V=	yes	4x trans. PNP	no	C
SLS-500-DS-C	local	24V=	4x 24V=	yes	4x photomos	yes	C
SLS-500-DS-D	remote	24V=	4x 24V=	yes	4x photomos	yes	C

* measurement input galvanically isolated from the power supply

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SLS-500-D..-16A

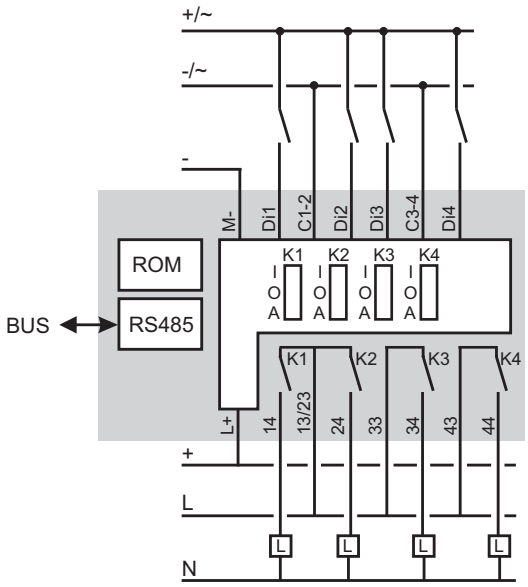
overview

- digital I/O expansion module
- universally for switching devices requiring mains power
- supply voltage 24V=
- 4 digital inputs 24V= or 230V~
- 4 outputs 230V~/16A
- 3 roots for 4 relay contacts
- MANUAL-OFF-AUTOMATIC switch
- LED indicators for inputs and outputs
- RS485 interface
- 67.5mm DIN rail mount housing

specification

supply voltage	24V=
power consumption	0,5W I
output relay specification	max. 16A 250V~
Ue/Ie AC-15	120V/3A 240V/3A
Ue/Ie DC-13	24V/1,5A
expected life time	SPNO
mechanical	$1x10^7$ operations
electrical	$7x10^4$ operations
input specification	230V~ / 24V=
	min. 1 mA / min. 3 mA
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	230g
dimensions	67,5 x 85 x 75mm
operating conditions	-15 to +55°C non condensing

*EN 60947-5-1 VDE 0435



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-DRR-16A-C	local	24V=	4x 230V~	yes	4x SPNO	yes	E
SLS-500-DRR-16A-D	remote	24V=	4x 230V~	yes	4x SPNO	yes	E
SLS-500-DR-16A-C	local	24V=	4x 24V~	yes	4x SPNO	yes	E
SLS-500-DR-16A-D	remote	24V=	4x 24V~	yes	4x SPNO	yes	E

* measurement input galvanically isolated from the power supply

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SLS-500-DBI-16A

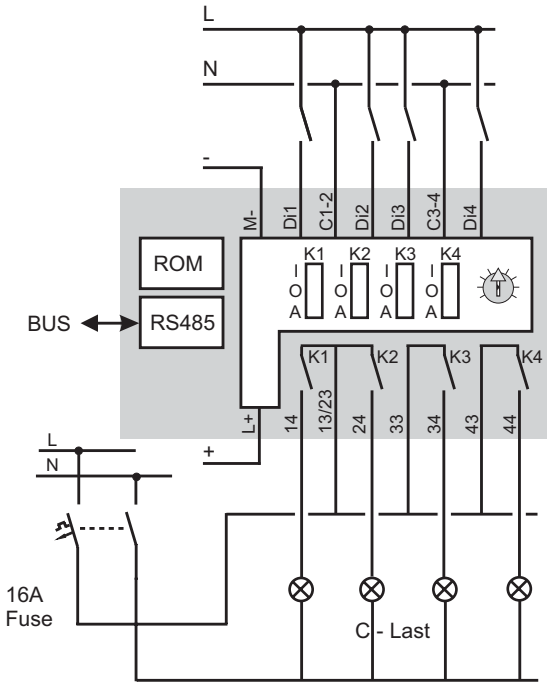
overview

- **supply voltage 24V=**
- **4 digital inputs**
- **4 outputs / bistable SPNO max. 16A**
- **LED indicators for inputs and outputs**
- **RS485 interface**
- **manuel of automatic switch**
- **pre-programmable timer functions**
- **67.5mm DIN rail mount housing**

specification

supply voltage	24V=
power consumption	0,5W
output relay specification	max. 16A 230V~
Only for resistive and capacitive	t< 20ms max. 165A
loads suited	t< 200µms max. 800A
expected life time	SPNO
mechanical	$3x10^6$ operations
electrical	$3x10^4$ operations
input specification	230V~
	min. 1mA
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	230g
dimensions	67,5 x 85 x 75mm
operating conditions	-15 to +55°C non condensing

*EN 60947-5-1 VDE 0435



ordering information

part no	type	supply	input	inp. galv.iso.*	output	outp. galv. iso.*	housing types
SLS-500-DBI-16A-C	local	24V=	4x 230V~	yes	4x SPNO	yes	E
SLS-500-DBI-16A-D	remote	24V=	4x 230V~	yes	4x SPNO	yes	E

* measurement input galvanically isolated from the power supply

SLS-500-DBI-16A digital input module

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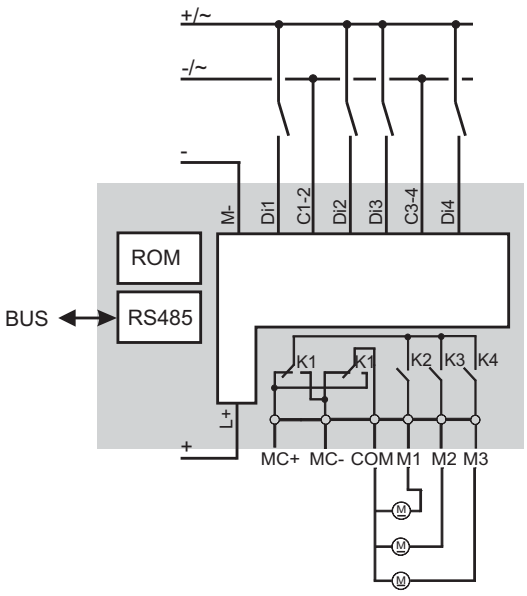
SLS-500-DVR

overview

- **digital I/O expansion module**
- **used to control up to 3 DC motors like shutters and skylights**
- **supply voltage 24V=**
- **4 digital inputs 24V=**
- **3 outputs for DC motor**
- **LED indicators for inputs and outputs**
- **pre-programmable timer functions**
- **RS485 interface**
- **67.5mm DIN rail mount housing**



specification

supply voltage	24V=
power consumption	0,5W
output relay specification	max. 5A 250V~
Ue/Ie DC-13	24V/1,5A
expexted life time	SPNO
mechanical	$2x10^7$ operations
electrical	$7x10^4$ operations
input specification	24V⎓
	min. 3 mA
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	67,5 x 85 x 75mm
operating conditions	-15 bis +55°C non condensing

ordering information

part no	type	supply	input	inp.galv.iso.*	output	outp.galv.iso.*	housing types
SLS-500-DVR-C	local	24V=	4x 24V⎓	yes	1xSPCO	yes	E
SLS-500-DVR-D	remote	24V=	4x 24V⎓	yes	3xSPNO	yes	E

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SLS-500-8DI

overview

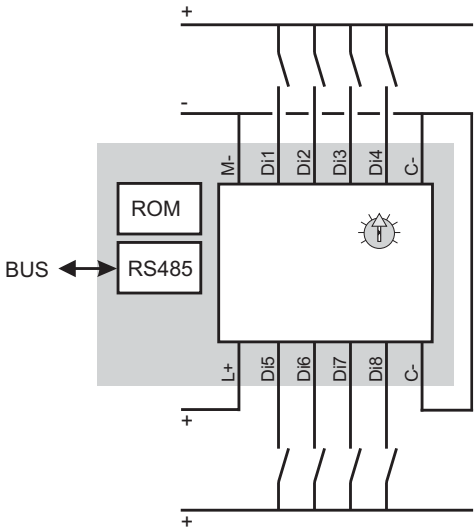
- digital input expansion module
- supply voltage 24V=
- 8 digital inputs 24V=
- LED indicator for input
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

local

remote

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
input specification	24V=
	min. 5 mA
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-8DI-C	local	24V=	8x 24V=	yes	-	-	C
SLS-500-8DI-D	remote	24V=	8x 24V=	yes	-	-	C

* measurement input galvanically isolated from the power supply

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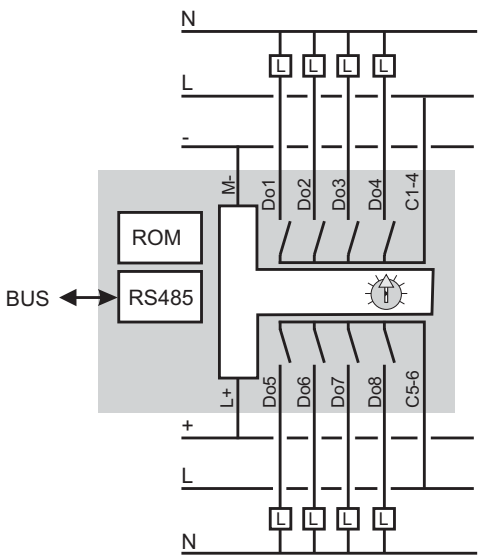
SLS-500-8D

overview

local

remote

- **digital output expansion module**
- **supply voltage 24V=**
- **8 digital outputs**
  - **SPNO 230V~= max. 5A**
  - **or transistor (PNP) 24V= max. 800mA**
  - **or photomos 60V~= max. 2A**
- **LED indicator for output**
- **RS485 interface**
- **1 potentiometer**
- **pre-programmable timer functions**
- **45mm DIN rail mount housing**



specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
expected life time	SPNO
mechanical	$1x10^7$ operations
electrical	$1x10^5$ operations
output transistor spec.	max. 800mA 24V= PNP
output photomos spec.	max. 2A 60V=
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing

*EN 60947-5-1 VDE 0435

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-8DR-C	local	24V=	-	-	8x SPNO	yes	C
SLS-500-8DR-D	remote	24V=	-	-	8x SPNO	yes	C
SLS-500-8DT-C	local	24V=	-	-	8x trans. PNP	no	C
SLS-500-8DT-D	remote	24V=	-	-	8x trans. PNP	no	C
SLS-500-8DS-C	local	24V=	-	-	8x photomos	yes	C
SLS-500-8DS-D	remote	24V=	-	-	8x photomos	yes	C

* measurement input galvanically isolated from the power supply

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SLS-500-FBR

overview

- digital room controller expansion module
- supply voltage 24V=
- 4 FBR room controller inputs 24V=
- 4 outputs
  SPNO 230V~= max. 5A
  or transistor (PNP) 24V= max. 800mA
- LED indicators for inputs and outputs
- room temperature controller with day/night- and auto-switch, temperature setting and temperature correction
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

local

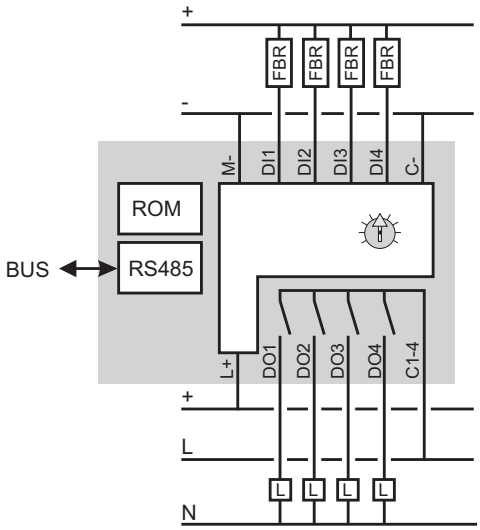
remote

FBR
room controller module
2-wire connection to
SLS-FBR module

FBR

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
expected life time	SPNO
mechanical	$1x10^7$ operations
electrical	$1x10^5$ operations
output transistor spec.	max. 800mA 24V= PNP
input specification	24V=
	min. 5 mA
protection class	terminals IP20
	package IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing
	*EN 60947-5-1 VDE 0435



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-FBR-R-C	local	24V=	4x 24V=	yes	4x SPNO	yes	C
SLS-500-FBR-R-D	remote	24V=	4x 24V=	yes	4x SPNO	yes	C
SLS-500-FBR-T-C	local	24V=	4x 24V=	yes	4x trans. PNP	no	C
SLS-500-FBR-T-D	remote	24V=	4x 24V=	yes	4x trans. PNP	no	C
FBR	please refer to page 03:08						

* measurement input galvanically isolated from the power supply

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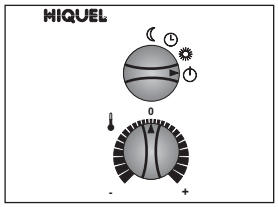
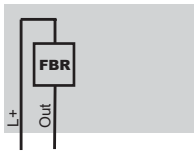
FBR-room control

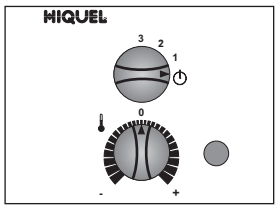
overview

- digital remote room control unit
- supply voltage 24V=
- two-wire connection
- room temperature measuring, party-switch and ideal value adjustment
- with button and 2 LEDs available
- various printing options are possible
- 2-piece housing for easy installation
- mountable on a standard flush box

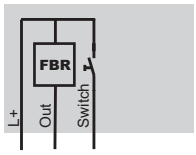


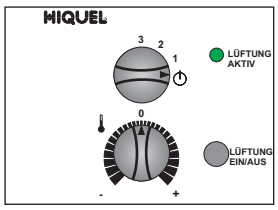
FBR-DS-PO



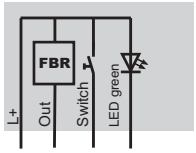


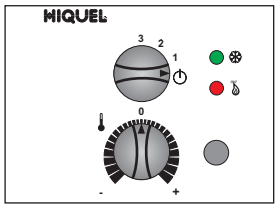
FBR-DS-PO-S



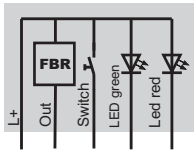


FBR-DS-PO-S-LG



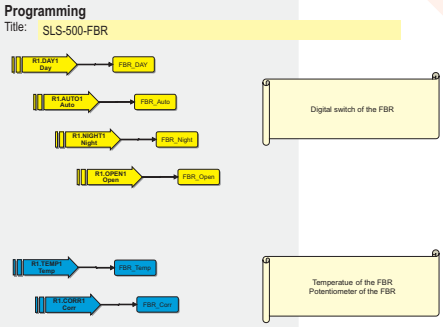


FBR-DS-PO-S-LG-LR



specification

supply voltage	24Vdc +-10%
duty cycle	100%
temperature range	-5 to +40°C
weight	80g
dimensions	
width	85mm
height	85mm
depth	25mm
operating conditions	-20 bis +40°C non condensing



ordering information

part no	digital switch	potentiometer	button	LED left green	LED right red	housing type
FBR	-	-	-	-	-	special
FBR-DS	1	-	-	-	-	special
FBR-PO	-	1	-	-	-	special
FBR-DS-PO	1	1	-	-	-	special
FBR-DS-PO-S	1	1	1	-	-	special
FBR-DS-PO-S-LG	1	1	1	1	-	special
FBR-DS-PO-S-LG-LR	1	1	1	1	1	special

* At request are also other Labeling and assembly variants available

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SLS-500-DIM

overview

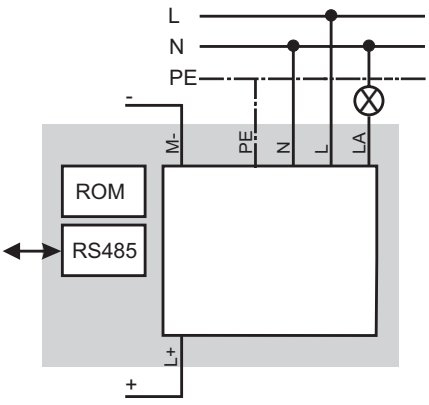
- **lighting dimmer expansion module**
- **supply voltage 24V=**
- **1 dimmed output 600Watt 230V~**
- **RS485 interface**
- **pre-programmable timer functions**
- **45mm DIN rail mount housing**

local

remote

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
mains voltage	230 Vac
rated output	600 VA
rated current	2,5 A
load type	ohmic, inductice, automatic load detection
control type	phase control
resolution	1%
leakage current	< 1mA (OFF-State)
protection class	terminals IP20 housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	155g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-DIM-C	local	24V=	-	-	1x dimmer	yes	C
SLS-500-DIM-D	remote	24V=	-	-	1x dimmer	yes	C

* measurement input galvanically isolated from the power supply

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SLS-500-PT100

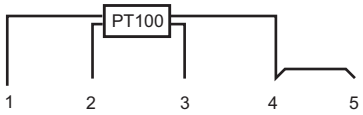
local

remote

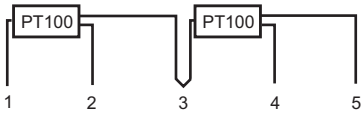
overview

- temperature input expansion module
- supply voltage 24V=
- 2 PT100 inputs
- 4 transistor outputs (PNP)
- LED indicators for outputs
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

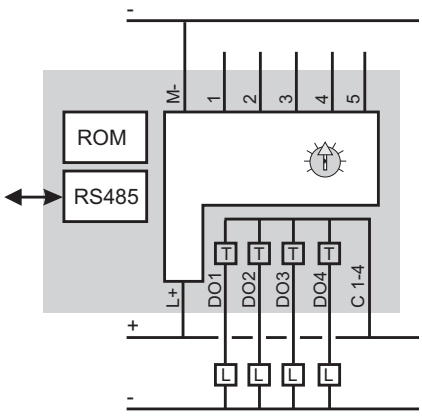
1 PT100 4-wire connection



2 PT100 3-wire connection



Remark:
Unused inputs are replaced by connections.



specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output transistor spec.	max. 800mA 24V= PNP
input specification	PT100 element
	-50°C to +300°C
	0,1°C repeat accuracy
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-PT100-C	local	24V=	2x PT100	no	4x trans. PNP	no	C
SLS-500-PT100-D	remote	24V=	2x PT100	no	4x trans. PNP	no	C

* The ordering information for various sensors you will find on page 03:23
* measurement input galvanically isolated from the power supply

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SLS-500-PT1000

overview

- temperature input expansion module
- supply voltage 24V=
- up to 4 PT1000 inputs
- 4 transistor outputs (PNP)
- LED indicators for outputs
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

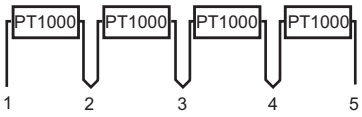
local

remote

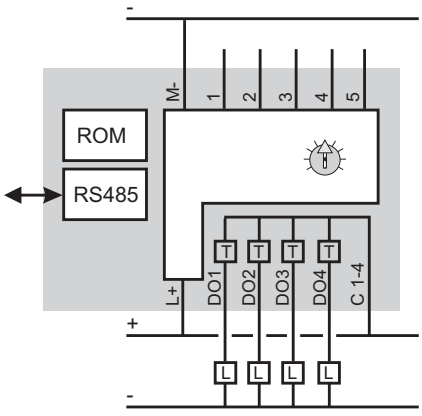
specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output transistor spec.	max. 800mA 24V= PNP
input specification	PT1000 element
	-50°C to +300°C
	0,1°C repeat accuracy
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing

4 PT1000 2-wire connection



Remark:
Unused inputs are replaced by connections.



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-PT1000-C	local	24V=	4x PT1000	no	4x trans. PNP	no	C
SLS-500-PT1000-D	remote	24V=	4x PT1000	no	4x trans. PNP	no	C

* The ordering information for various sensors you will find on page 03:23
* measurement input galvanically isolated from the power supply

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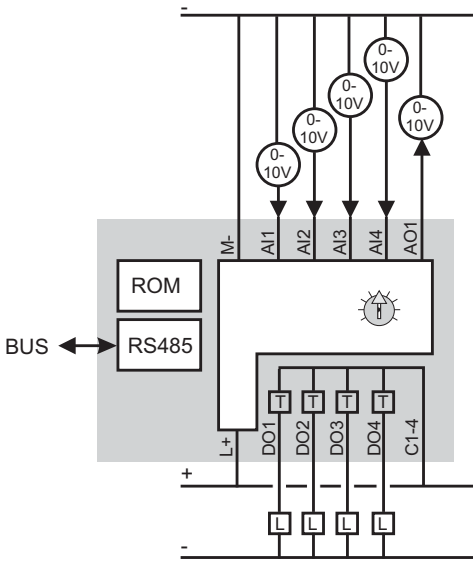
SLS-500-AU

local

remote

overview

- analogue I/O expansion module
- supply voltage 24V=
- 4 analogue inputs 0-10V
- 1 analogue output 0-10V
- 4 transistor outputs (PNP)
- LED indicators for outputs
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing



specification

supply voltage	24V=
power consumption	0,5W nominal
transistor output spec.	max. 800mA 24V= PNP
	max. 8kHz
analogue output spec.	0 - 10V= max. 2mA
resolution	12 bit
repeat accuracy	0,1%
precision	±0,5%
analogue input spec.	0 - 10V=
resolution	10 bit
input resistance	50kOhm
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55 °C non condensing

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-AU-C	local	24V=	4x 0-10V	no	4x trans. PNP	no	C
SLS-500-AU-D	remote	24V=	4x 0-10V	no	4x trans. PNP	no	C

* The ordering information for various sensors you will find on page 03:23
* measurement input galvanically isolated from the power supply

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SLS-500-AI

overview

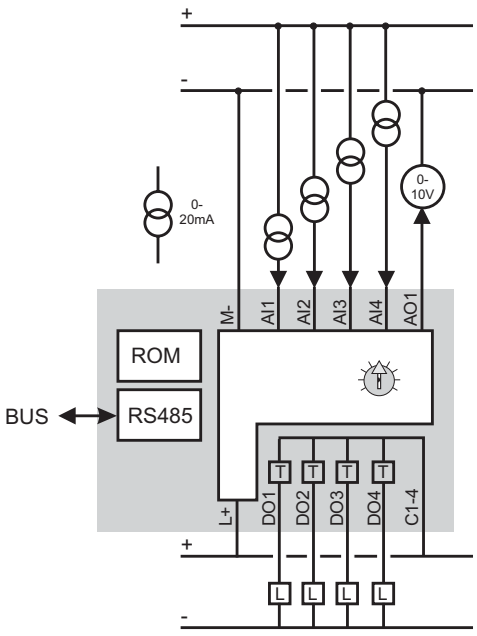
- analogue I/O expansion module
- supply voltage 24V=
- 4 analogue inputs 0-20 mA
- 1 analogue output 0-10 V
- 4 transistor outputs (PNP)
- LED indicators for outputs
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

local

remote

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output transistor spec.	max. 800mA 24V= PNP
	max. 8kHz
analogue output spec.	0 - 10V= max. 2mA
resolution	12 bit
repeat accuracy	0,1%
precision	±0,5%
analogue input spec.	0 - 20mA
resolution	10 bit
input resistance	250 Ohm
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-AI-C	local	24V=	4x 0-20mA	no	4x trans. PNP	no	C
SLS-500-AI-D	remote	24V=	4x 0-20mA	no	4x trans. PNP	no	C

* The ordering information for various sensors you will find on page 03:23
* measurement input galvanically isolated from power supply

SLS-500-AI analogue I/O module (current)

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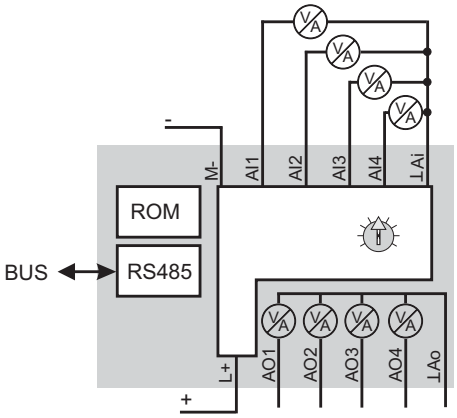
SLS-500-AU-AU

overview

local

remote

- **analogue I/O expansion module**
- **supply voltage 24V=**
- **4 analogue inputs 0-10V**
- **4 analogue outputs 0-10V**
- **RS485 interface**
- **1 potentiometer**
- **pre-programmable timer functions**
- **45mm DIN rail mount housing**



specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
analogue output spec.	0 - 10V= max. 2mA
resolution	12 bit
repeat accuracy	0,1%
precision	±0,5%
analogue input spec.	0 - 10V=
resolution	10 bit
input resistance	50kOhm
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-AU-AU-C	local	24V=	4x 0-10V	no	4x 0-10V	no	C
SLS-500-AU-AU-D	remote	24V=	4x 0-10V	no	4x 0-10V	no	C

* The ordering information for various sensors you will find on page 03:23
* measurement input galvanically isolated from the power supply

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SLS-500-AI-AI

overview

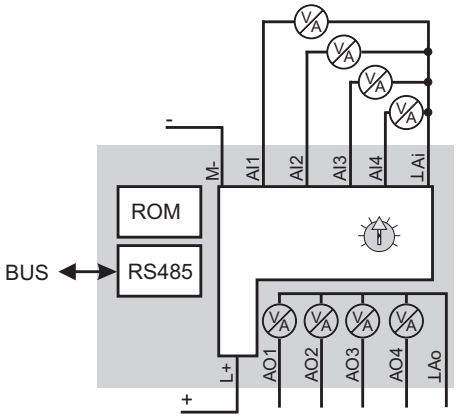
- analogue I/O expansion module
- supply voltage 24V=
- 4 analogue inputs 0-20mA
- 4 analogue outputs 0-20mA
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

local

remote

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
analogue output spec.	0 - 10V= max. 2mA
resolution	10 bit
repeat accuracy	0,1%
precision	±0,5%
analogue input spec.	0 - 20mA
resolution	12 bit
input resistance	250 Ohm
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-AI-AI-C	local	24V=	4x 0-20mA	no	4x 0-20mA	no	C
SLS-500-AI-AI-D	remote	24V=	4x 0-20mA	no	4x 0-20mA	no	C

* The ordering information for various sensors you will find on page 03:23
* measurement input galvanically isolated from the power supply

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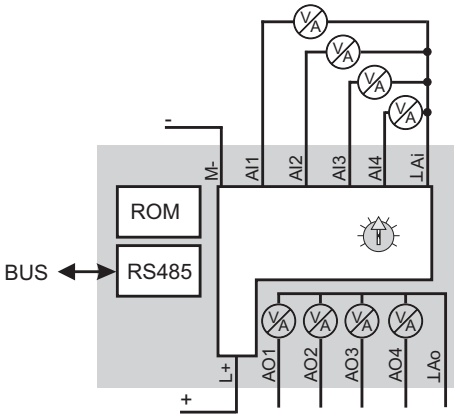
SLS-500-AI-AU

overview

local

remote

- **analogue I/O expansion module**
- **supply voltage 24V=**
- **4 analogue inputs 0-20mA**
- **4 analogue outputs 0-10V**
- **RS485 interface**
- **1 potentiometer**
- **pre-programmable timer functions**
- **45mm DIN rail mount housing**



specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
analogue output spec.	0 - 10V= max. 2mA
resolution	10 bit
repeat accuracy	0,1%
precision	±0,5%
analogue input spec.	0 - 10V=
resolution	12 bit
input resistance	250 Ohm
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-AI-AU-C	local	24V=	4x 0-20mA	no	4x 0-10V	no	C
SLS-500-AI-AU-D	remote	24V=	4x 0-20mA	no	4x 0-10V	no	C

* The ordering information for various sensors you will find on page 03:23
* measurement input galvanically isolated from the power supply

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SLS-500-AU-AI

overview

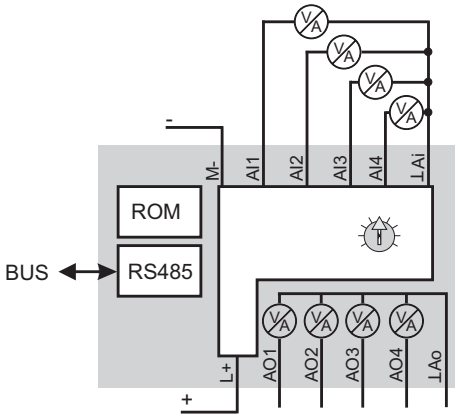
- analogue I/O expansion module
- supply voltage 24V=
- 4 analogue inputs 0-10V
- 4 analogue outputs 0-20mA
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

local

remote

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
analogue output spec.	0 - 10V= max. 2mA
resolution	10 bit
repeat accuracy	0,1%
precision	±0,5%
analogue input spec.	0 - 20mA
resolution	12 bit
input resistance	50 kOhm
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-AU-AI-C	local	24V=	4x 0-10V	no	4x 0-20mA	no	C
SLS-500-AU-AI-D	remote	24V=	4x 0-10V	no	4x 0-20mA	no	C

* The ordering information for various sensors you will find on page 03:23
* measurement input galvanically isolated from the power supply

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SLS-500-SIO

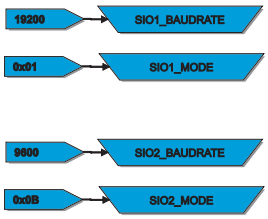
overview

remote

- **serial I/O interface expansion module**
- **supply voltage 24V=**
- **2 open-protocol serial ports can be used as RS232 or RS485**
- **the following baud rates are available: 1200, 2400, 4800, 9600, 19200, 38400**
- **status LED for RS232**
- **pre-programmable timer functions**
- **45mm DIN rail mount housing**

Programming

Title: Initialization



Possible Baudrates for SIO1 and SIO2

1200
2400
4800
9600
19200
38400

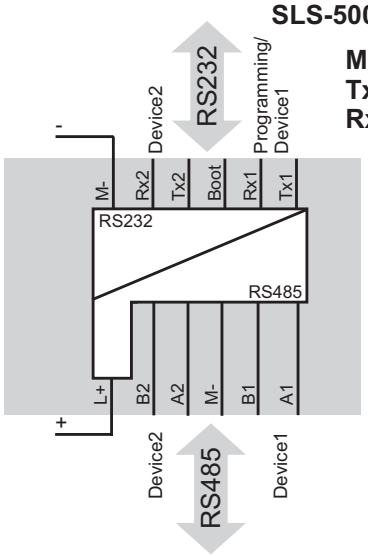
Possible Modes for SIO1 and SIO2:

8,N,1=0x01
7,N,1=0x00
8,N,2=0x09
7,N,2=0x08
8,E,1=0x03
7,E,1=0x02
8,E,2=0x0B
7,E,2=0x0A
8,O,1=0x05
7,O,1=0x04
8,O,2=0x0D
7,O,2=0x0C

Connection to a PC (9 pin SUB-D socket):

SLS-500-SIO Sub-D

M- => PIN 5
Tx1 => PIN 2
Rx1 => PIN 3



specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-SIO-D	remote	24V=	-	-	-	-	C
SLS-550-SIO-D	remote	24V=	-	-	-	-	C
SLS-500-PC-RS232-SIO	download cable						

* measurement input galvanically isolated from the power supply

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SLS-500-SMS

overview

- GSM (Text) modem interface expansion module
- supply voltage 24V=
- connection to a SIEMENS TC35 GSM-terminal
- SMS (Text) message sending on the basis of a GSM protocol
- received SMS will perform control functions
- LED indicators for RS232
- RS485 interface
- 45mm DIN rail mount housing

remote

For instance use with:

Siemens TC35 GSM-module + aerial + cable (see below):

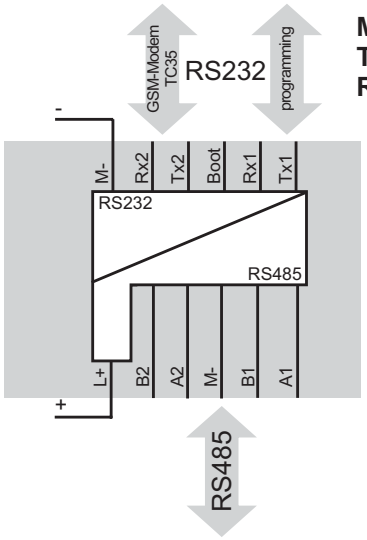
specification

supply voltage	24V= ±10%
power consumption	0,5W
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55°C non condensing

Connection to a PC (9 pin SUB-D socket):

SLS-500-SMS Sub-D

M- => PIN 5
Tx1 => PIN 2
Rx1 => PIN 3



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-SMS-D	remote	24V=	-	-	-	-	C
SLS-500-TC35-SMS	connecting cable						
SLS-500-PC-RS232-SIO	download cable						
TC35-PS	power supply cable for TC35						
TC35	GSM module and aerial						

* measurement input galvanically isolated from the power supply

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SLS-500-GW

remote

overview

- Gateway expansion module
- supply voltage 24V=
- Gateway for EnOceon Radio Receiver
- Gateway for SLS-500-MBUS up to 4 values
- Gateway for Dali-Lighting controls
- RS232 and RS485 interface
- 45mm DIN rail mount housing

specification

supply voltage	24V= ±10%
power consumption	0,5W
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-15 bis +55°C non condensing

ordering information

part no	type	supply	housing types
SLS-500-GW-D	remote	24V=	C

*measurement input galvanically isolated from the power supply

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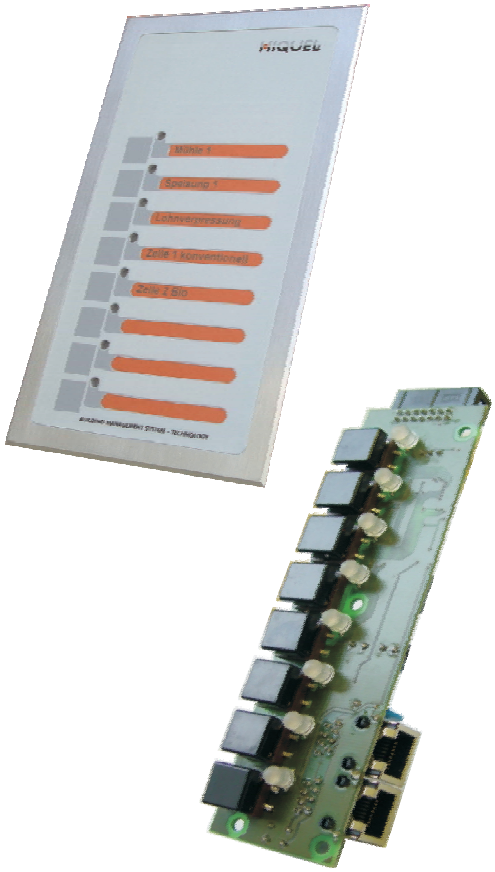
SLS-500-T1

overview



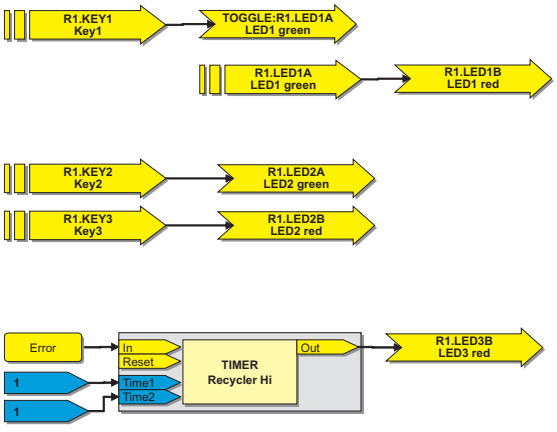
- button and LED expansion module
- supply voltage 24V= over bus connection
- Ideal for industrial and building automation
- 8 free programmable buttons
- 8 free programmable LEDs
- Each LED can display 4 states
- Connectable as an expansion module on every SLS-500-CAN base module
- Free selectable label for every button and LED
- Print design for customer specific applications available

specification

supply voltage	nominal voltage +10% / -15%
duty cycle	100%
protection class	IP54 (front)
weight	660g
dimensions	
width	195mm
height	110mm
depth	40mm
operating conditions	-20 bis +40°C non condensing

Programming

Title: Programming



ordering information

part no	type	supply	construction	housing type
SLS-500-T1-D	remote	24V=	print	special
SLS-500-T1-D-A	remote	24V=	print with Alu-front	special
SLS-500-T1-D-AP	remote	24V=	print with Alu-front and housing	special

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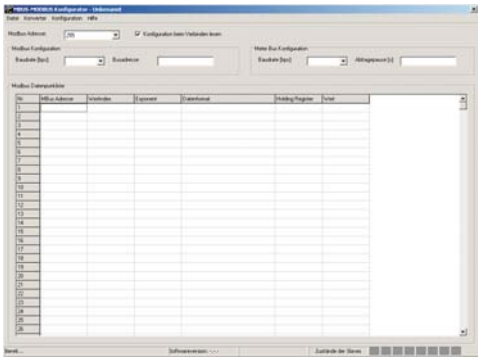
SLS-500-MBUS

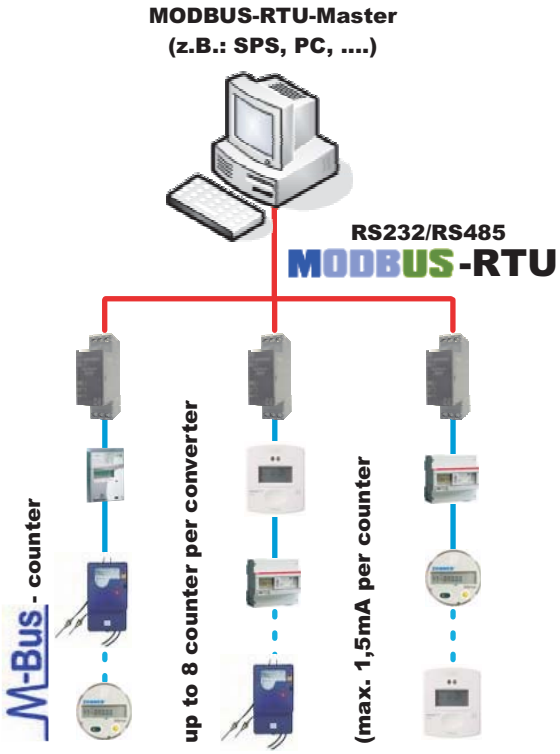
overview

- **MBUS-MODBUS-protocol-converter**
- **allows you to read of MBUS-counter via Modbus-RTU**
- **Up to 8 counter per converter readable**
- **Readout interval adjustable**
- **Readout of the counter values via Modbus register**
- **with RS232 or RS485 interface**
- **easy programming via Windows-Utility**
- **It is also possible to upgrade the counter definitions by your own**



specification

supply voltage	24V=±10%
power consumption	0,5W nominal
Modbus-interface	RS232 or RS485 Modbus-RTU
	9600 to 57600 Baud,
	8 data bits, no parity,1 stop bit
MBUS-interface	max. 8 members á 1,5 mA
	per member
	300 to 38400 Baud,
	8 data bits, no parity,1 stop bit
	max. cable length 350m
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	80g
dimensions	22,5 x 75 mm
operating conditions	-15 bis +55 °C non condensing



ordering information

part no	interface	supply	housing types
SLS-500-MBUS-232	RS232-Modbus RTU	24V=	A
SLS-500-MBUS-485	RS485-Modbus RTU	24V=	A
SLS-500-PC-RS232-SIO	configuration cable for SLS-500-Mbus-RS232		

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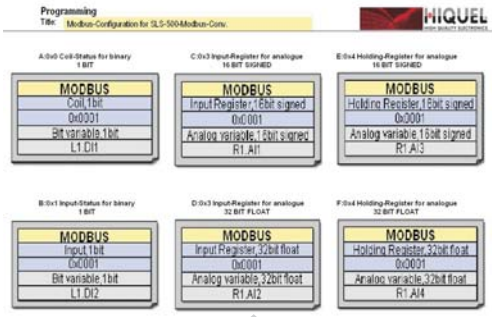
SLS-500-Modbus

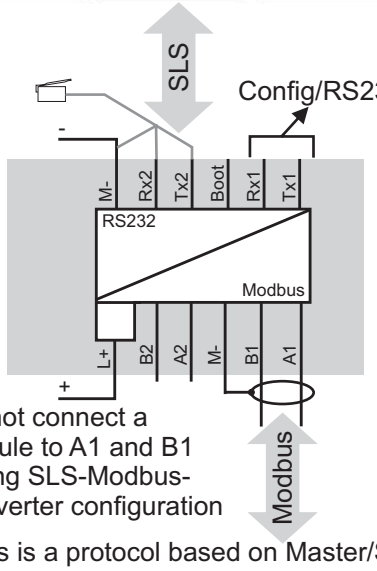
overview

- **Modbus converter expansion module**
- **supply voltage 24V=**
- **RS232 / modbus converter**
- **the following baud rates are available: 9600, 19200, 38400**
- **you can choose a modbus address from ID 0x0000 - ID 0x7F**
- **SLS-500-Configurator configuration cable and SLS-500 cable are delivered with the modbus converter**
- **LED indicators for receiving (Rx) and transmission (Tx)**
- **45mm DIN rail mount housing**

Configuration:

SLS-500-Configurator is available for programming and configuration:
:





Do not connect a module to A1 and B1 during SLS-Modbus-Converter configuration

Modbus is a protocol based on Master/Slave architecture which has been developed for industrial control networking.

Due to the trouble-free exchange of data between Modbus and a wide range of serial interfaces, this system has widespread consumer acceptance.

specification

supply voltage	24V= ±10%	
power consumption	1W nominal	
settings	9600 baud	
used addresses	modbus	SLS-500-memory type
	0x0000 to 0x7F	bit-variables
	0x0000 to 0x7F	analogous-variables
protection class	terminals	IP20
	housing	IP50
screws	pozidrive 1	
screw tightening torque	0,6..0,8 Nm	
weight	120g	
dimensions	45 x 85 x 75mm	
operating conditions	-15 to +55 °C non condensing	

ordering information

part no	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-500-Modbus-Conv.	24V=	-	-	-	-	C

* measurement input galvanically isolated from the power supply

X01.00

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Accessories

wind sensor

rain sensor

outdoor sensor

cable sensor

surface-contacting sensor

ordering information

weather station	part no	supply	output	measuring range
rain sensor	RM1	24Vdc/Vac	relay NO/NC 30V/4A	
wind sensor	WS1	24Vdc	0...10Vdc	0,7...40m/s

temperature sensor passive	part no	with silicon cable	output	measuring range
cable surface -contacting sensor	ALTF1-PT1000	no	PT1000	-10...+105°C
cable surface-contacting sensor	ALTF1-PT1000-S	yes	PT1000	-30...+180°C
surface-contacting sensor	ALTF2-PT1000	no	PT1000	-30...+110°C
outdoor temperature sensor	ATF1-PT1000	no	PT1000	-50...+90°C
cable temperature sensor	HTF-PT1000	no	PT1000	-10...+105°C
cable temperature sensor	HTF-PT1000-S	yes	PT1000	-50...+180°C

temperature sensor active	part no voltage output 0..10Vdc	sensor	measuring range
surface-contacting sensor	ALTM2-U	PT1000	-50..+50°C
outdoor temperature sensor	ATM1-U	PT1000	5 ranges adjustable -50..150°C

temperature sensor active	part no current output 4..20mA	sensor	measuring range
surface-contacting sensor	ALTM2-I	PT1000	-50..+50°C
outdoor temperature sensor	ATM1-I	PT1000	5 ranges adjustable -50..150°C

light intensity sensor	part no voltage ouput 0..10Vc	sensor	measuring range
Brightness sensor	AHKF-0,5-U		0...500Lux
outdoor light intensity sensor	AHKF-60-U		0...60000 Lux

Light intensity sensor	part no current output 4..20mA	sensor	measuring range
Brightness sensor	AHKF-0,5-I		0...500Lux
outdoor light intensity sensor	AHKF-60-I		0...60000 Lux

* At request are also other sensor types and measuring ranges available

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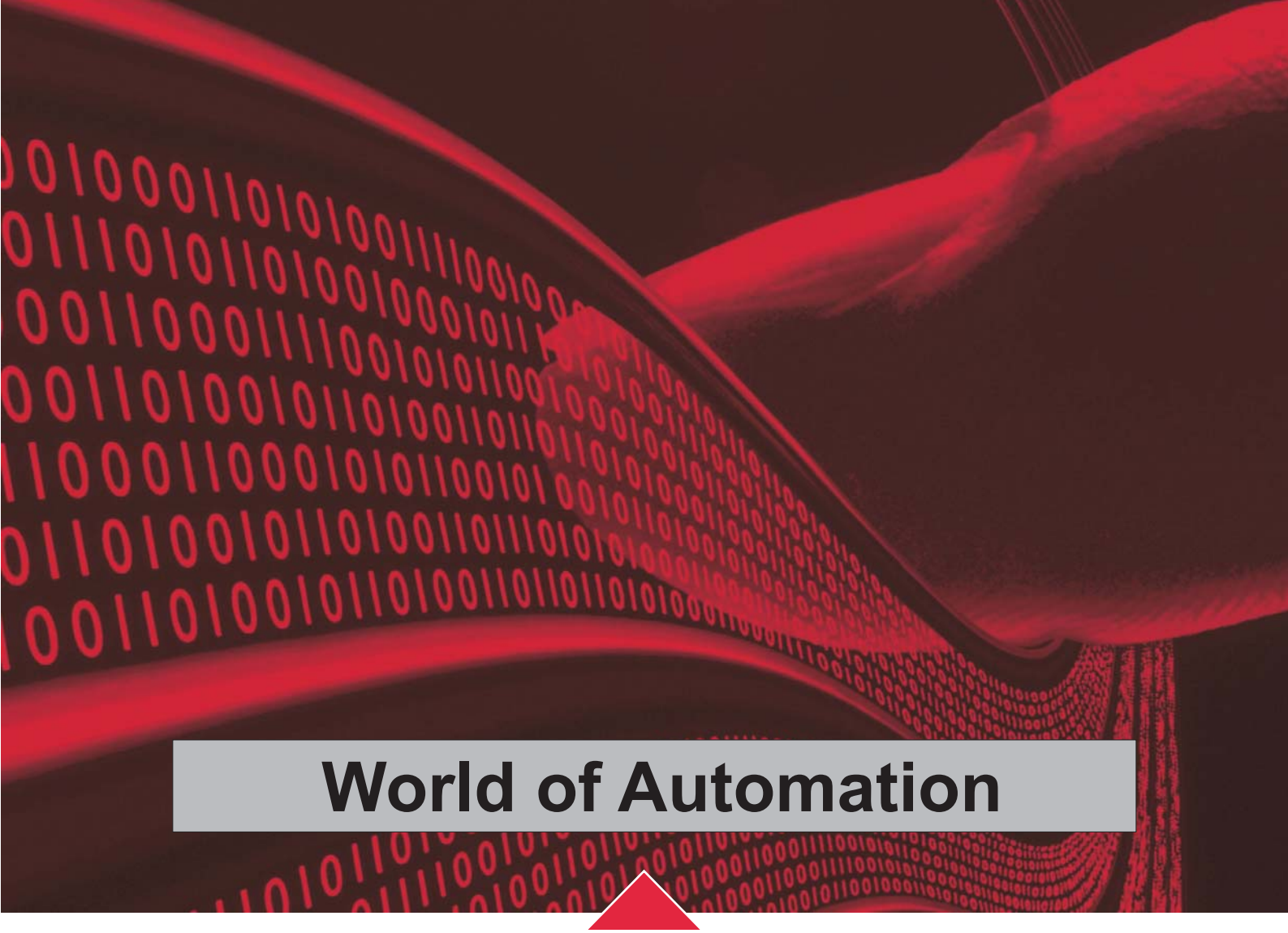

World of Automation

Chapter 4: Network Data Communication

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4 Chapter 4: Networking

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.09 Surge Guard

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USBport 11xx

overview

USBport 1110/1130 1150

Terminal Block Adaptor for USBport 1130, 1150, 1150I

USBport 1150I

- **1-port RS-232 and RS-422/485 USB-to-serial converters**
- **Compatible with USB 2.0**
- **12Mbps USB data rate**
- **921.6 Kbps maximum baudrate for super fast data transmission**
- **Drivers provided for Windows (including Vista), WinCE 5.0, and Linux**
- **DB9 male connector for RS-232, terminal block adaptor for RS-422/485**
- **LEDs for indicating USB and TxD/RxD activity**
- **15KV ESD protection for all serial ports**
- **2 KV optical isolation protection (USBport 1150I)**

The USB-to-serial converters allow you to connect 1 RS-232/422/485 device to your laptop or workstation through the USB (Universal Serial Bus) port. These plug & play USB solutions are Instant Plug & Play compatible with both new and legacy RS-232/422/485 devices, and are perfect for mobile, instrumentation, and point-of sale applications.

specification

USB	
compliance	USB 1.0/1.1 compliant
	USB 2.0 compatible
SERIAL INTERFACE	
Serial Standards	USBport 1110: RS-232
	USBport 1130: RS-422/485
	USBport 1150: RS-232/422/485
connectors	DB9 male
SERIAL COMMUNICATE PARAMETERS	
Baudrate	50bps to 921.6 Kbps
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	RTS/CTS, XON/XOFF
DRIVER SUPPORT	
Operating systems	Windows (2000, XP, 2003, Vista,
	WinCE 5.0, Linux 2.6
PHYSICAL CHARACTERISTICS	
Weight	85g
Dimensions	52 x 80 x 22mm (USBport 1150I)
Operating temperature	0 to 55°C
Operating humidity	5 to 95% RH

ordering information

part no	RS-232	RS-422	RS-485	optical isolation protection	housing types
Uport-1110	1			no	special
Uport-1130		1	1	no	special
Uport-1150	1	1	1	no	special
Uport-1150I	1	1	1	yes	special
DK-35A	Mounting Kit for 35mm DIN-Rail				

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USBport 12xx

overview

- 2-port RS-232/422/485 USB-to-serial converter with 2 KV isolation protection
- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Additional I/O and IRQ not needed
- Certified drivers provided for Windows (including Vista), and WinCE 5.0
- Easy monitoring with LEDs and management software
- 15 KV ESD protection for all serial ports
- Choose bus power (USBport 1250) or external power (USBport 1250I)

USBport1250

USBport 1250I

specification

USB	
compliance	USB 1.1/2.0 compliant
SERIAL INTERFACE	
Serial Standards	RS-232/422/485
connectors	DB9 male
SERIAL COMMUNICATION PARAMETERS	
Baudrate	50bps to 921.6 Kbps
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	RTS/CTS, XON/XOFF
DRIVER SUPPORT	
Operating systems	Windows (2000, XP, 2003, Vista, WinCE 5.0, Linux 2.6)
PHYSICAL CHARACTERISTICS	
Operating temperature	0 to 55°C
Operating humidity	5 to 95% RH
Weight	180g
Dimensions	77 x 26 x 111mm

The USBport 1250/1250I USB-to-serial converters allow you to connect 2 RS-232/422/485 devices to your laptop or workstation through the USB (Universal Serial Bus) port. This plug & play USB solution is perfect for mobile, instrumentation, and point-of-sale applications.

USB plug & play makes serial port expansion easy, and does not require IRQ, DMA, or I/O address resources. Users no longer need to open the chassis or power down the system to add COM ports, saving on setup time and cost.

In shipment is one DB9 female to terminal block adaptor per module.

ordering information

part no	RS-232	RS-422	RS-485	optical isolation protection	housing types
Uport-1250	2	2	2	no	special
Uport-1250I	2	2	2	yes	special
DK-35A	Mounting Kit for 35mm DIN-Rail				
TB9F-to-TB	DB9 female to terminal block adaptor for RS-422/485 applications				

2-port RS-232/422/485 USB-to-serial converter

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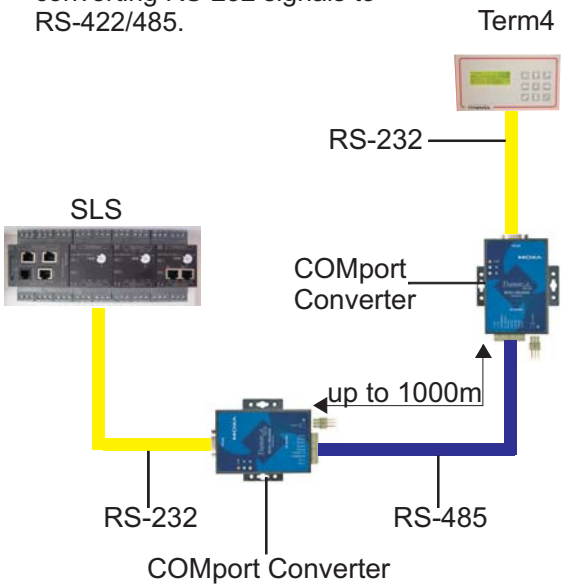
COMport Conv.

overview

- **Isolated Industrial RS-232 to RS-422/485 converters**
- **RS-232 to RS-422 conversion with RTS/CTS support**
- **RS-232 to 2/4-wire RS-485 conversion**
- **2 KV isolation protection (COMport Conv. 100I)**
- **Wall and DIN-rail mounting**
- **Plug-in terminal block for easy RS-422/485 wiring**
- **LED indicators for power, TX, Rx**
- **-20 to 60°C operating temperature**

The COMport Converter 100/100I is an isolated RS-232 to RS-422/485 converter that can be used toextend RS-232 transmission distance and increase networking capability. It has a superior industrial-grade design, with DIN-rail mounting, terminal block wiring, external terminal block for power, and optical isolation for system protection (COMport Converter 100I). For critical industrial environments, the COMport Converter 100 is an ideal solution for converting RS-232 signals to RS-422/485.



specification

SERIAL COMMUNICATION PARAMETERS	
Baudrate	300 bps to 921.6 Kbps
Surge Protection	15 KV ESD for serial signals
Optical Isolation	2 KV (COMport Converter)
Power EFT /Surge Protection	2 KV
PHYSICAL CHARACTERISTICS	
Operating temperature	-20 to 60°C
Operating humidity	5 to 95% RH
Weight	148 +/- 5g
Dimensions	67 x 100,4 x 22mm
POWER REQUIREMENTS	
Input Power Voltage	12 to 48 Vdc

ordering information

part no	optical isolation protection	housing types
TCC-100	no	special
TCC-100I	yes	special
DK-35A	Mounting Kit for 35mm DIN-Rail	

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COMport Rep.

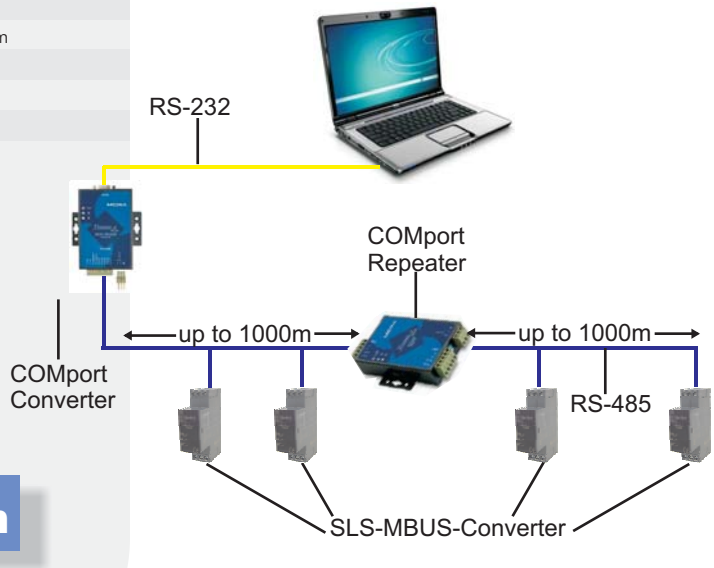
overview

- **Industrial RS-422/485 converter/repeater with 2 KV isolation protection**
- **Boost serial signal to extend transmission distance**
- **Wall or DIN-rail mounting**
- **Terminal block for easy wiring**
- **Power input from terminal block**
- **DIP switch setting for built-in terminator (120ohms)**
- **Boost RS-422 or RS-485 signal, or convert RS-422 to RS-485**
- **2KV isolation protection (COMport Repeater 120I)**

The COMport Repeater 120 and 120I are RS-422/485 converters/repeaters designed to extend RS-422/485 transmission distance. Both products have a superior industrial-grade design that includes DIN-rail mounting, terminal block wiring, and external terminal block for power. In addition, the COMport Repeater 120 and 120I are ideal RS-422/485 converters/repeaters for critical industrial environments.

specification

SERIAL COMMUNICATION PARAMETERS	
Baudrate	300 bps to 230.4 Kbps
ESD protection	15KV for all signals
Optical isolation	2 KV
	(COMport Repeater 120I only)
PHYSICAL CHARACTERISTICS	
Operating temperature	-20 to +60°C
Operating humidity	5 to 95% RH
Weight	148 +/- 5g
Dimensions	67 x 100.4 x 22mm
POWER REQUIREMENTS	
Input voltage	12 to 48 Vdc



ordering information

part no	optical isolation protection	housing types
TCC-120	no	special
TCC-120I	yes	special
DK-35A	Mounting Kit for 35mm DIN-Rail	

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EDS-316/308/305

overview

- **16-, 8-, or 5-Port Unmanaged Ethernet Switch**
- **10/100 BaseT(X), 100 BaseFX (Multi mode, SC/ST connector)**
- **Redundant dual 24 Vdc power inputs**
- **Relay output warning for power failure and port break alarm**
- **Broadcast storm protection**
- **Transmits VLAN tag packets transparently**
- **0 to 60°C operating temperature range**
- **Rugged hardware design well suited for industrial environments**

Features:

High Performance Network Switching Technology
- Store and Forward switching process type
- 10/100M, Full/Half-Duplex, MDI/MDI-X auto sensing

Industrial-grade Reliability
- Power failure, port break alarm by relay output
- Redundant dual DC power inputs

Rugged design
- DIN-Rail mounting
- IP30, rugged high-strength metal case

specification

TECHNOLOGY	
Standards	IEEE 802.3, 802.3u, 802.3x
INTERFACE	
RJ45 Ports	10/100 Base T(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
Fiber Ports	100BaseFX ports (SC/ST connector)
LED indicators	PWR1, PWR2, Fault, 10/100M (TP port), and 100M (Fiber port)
OPTICAL FIBER	
Multi mode	0 to 5km, 1300nm (50/125μm, 800 MHz*km)
	0 to 4km, 1300nm (62.5/125μm, 500 MHz*km)
Single mode	0 to 40km, 1310nm (9/125μm, 3.5 PS /(nm*km))
PHYSICAL CHARACTERISTICS	
Operating temperature	0 to 60°C
Operating humidity	5 to 95% (non-condensing)
Shock	IEC60028-2-27
Vibration	IEC60068-2-6
Dimensions (W x H x D)	
EDS-316 series	80.5 x 135 x 105 mm
EDS-308/305 series	53.6 x 135 x 105 mm
Weight	
EDS-316 series	1140g
EDS-308/305 series	630g
POWER REQUIREMENTS	
Input voltage	24Vdc (12 to 45Vdc), redundant

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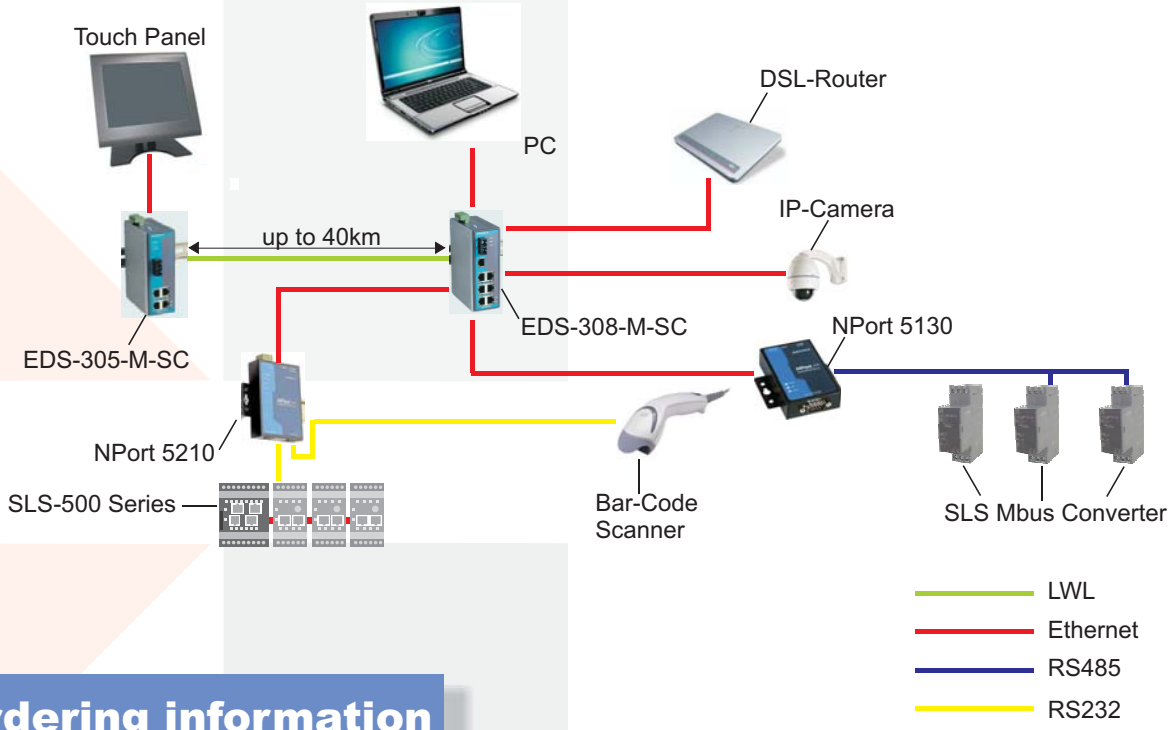
EDS-316/308/305

overview

The EDS-316/308/305 series includes 16, 8, and 5 port Ethernet switches that provide an economical solution for your industrial Ethernet connection, and the built-in relay warning function alerts maintainers when power failures or port breaks occur.

These switches have been designed for harsh industrial environments, such as in hazardous locations that comply with FCC, TÜV, UL and CE standards. These model pass through a 100% burn-in test to ensure that they fulfill the special needs of industrial automation control.



ordering information

part no	RJ45-Port	LWL-Port SC Connector	LWL-Port ST Connector	LWL type	housing types
EDS-316	16	-	-	-	special
EDS-316-M-SC	15	1	-	multi mode	special
EDS-316-MM-SC	14	2	-	multi mode	special
EDS-316-M-ST	15	-	1	multi mode	special
EDS-316-MM-ST	14	-	2	multi mode	special
EDS-316-S-SC	15	1	-	single mode	special
EDS-316-SS-SC	14	2	-	single mode	special
EDS-316-MS-SC	14	2	-	1x multi mode / 1x single mode	special
EDS-308	8	-	-	-	special
EDS-308-M-SC	7	1	-	multi mode	special
EDS-308-MM-SC	6	2	-	multi mode	special
EDS-308-MM-ST	6	-	2	multi mode	special
EDS-308-S-SC	7	1	-	single mode	special
EDS-308-SS-SC	6	2	-	single mode	special
EDS-305	5	-	-	-	special
EDS-305-M-SC	4	1	-	multi mode	special
EDS-305-M-ST	4	-	1	multi mode	special
EDS-305-S-SC	4	1	-	single mode	special
EDS-309-3M-SC	6	3	-	multi mode	special
EDS-309-3M-ST	6	-	3	multi mode	special

16-, 8-, or 5-Port Unmanaged Ethernet Switch

ETHERNET

DIN

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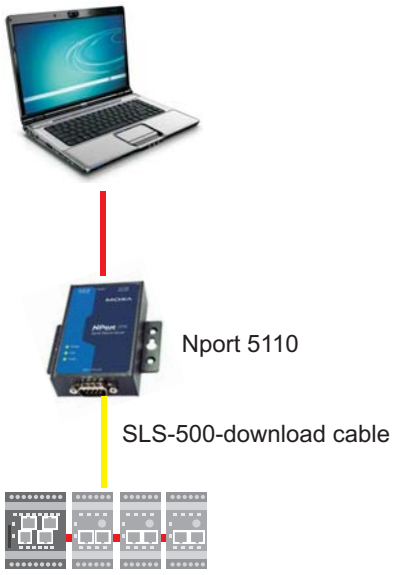
Nport 51xx

overview

- **1-port RS-232/422/485 serial device servers**
- **Real COM/TTY drivers for Windows and Linux**
- **Standard TCP/IP interface and versatile operation modes**
- **Easy-to-use Windows utility for configuring multiple device servers**
- **Built-in 15KV ESD protection for all serial signals**
- **SNMP MIB-II for network management**
- **Configure by Telnet or web browser**
- **Adjustable termination resistor for RS-485 ports**

Nport 51xx device servers are designed to make serial devices network-ready in an instant. The small size of the servers makes them ideal for connecting devices such as card readers and payment terminals to an IP-based Ethernet LAN. Use the Nport 51xx device servers to give your PC software direct access to serial devices from anywhere on the network.



specification

ETHERNET INTERFACE		
Speed	10/100 Mbps	
Connector	8-pin RJ45	
SERIAL INTERFACE		
Serial Standards	Nport 5110:	RS-232
	NPort 5130:	RS-422/485
	NPort 5150:	RS-232/422/485
Connector	DB9 male	
SERIAL COMMUNICATION PARAMETERS		
Data Bits	5, 6, 7, 8	
Stop Bits	1, 1.5, 2	
Parity	None, Even, Odd, Space, Mark	
Flow Control	RTS/CTS and DTR/DSR (RS-232 only), XON/XOFF	
Baudrate		
Nport 5110	110 bps to 230.4 Kbps	
Nport 5130/5150	50 bps to 921.6 Kbps	
PHYSICAL CHARACTERISTICS		
Operating temperature	0 to 55°C	
Operating humidity	5 to 95% RH	
Weight	380g	
Dimensions	75.2 x 80 x 22mm with ears	
POWER REQUIREMENTS		
Input voltage	12 to 48Vdc	

ordering information

part no	RS-232	RS-422	RS-485	housing types
Nport-5110	1			special
Nport-5130		1	1	special
Nport-5150	1	1	1	special
DK-35A	Mounting Kit for 35mm DIN-Rail			
TB9F-to-TB	DB9 female to terminal block adaptor for RS-422/485 applications			
SLS-Std-RS232	download cable			

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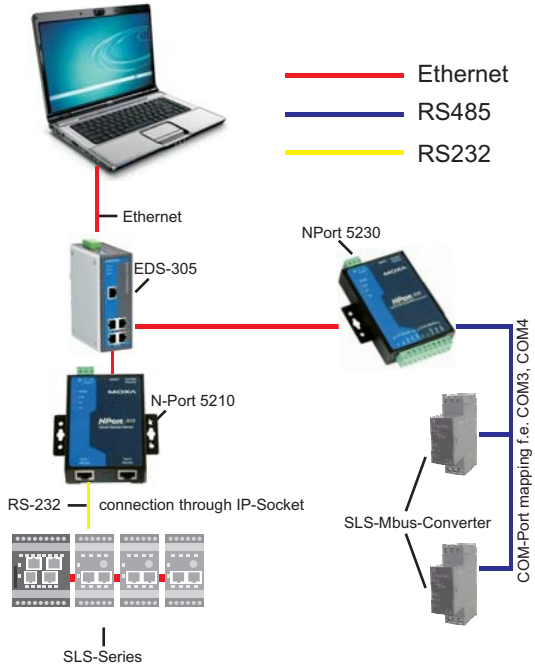
Nport 52xx

overview

- **2-port RS-232/422/485 serial device servers**
- **Small size for easy installation**
- **Versatile socket operation modes, including TCP Server, TCP Client, and UDP**
- **Easy-to-use Windows utility for configuring multiple device servers**
- **Supports 10/100M Ethernet**
- **Patented ADDC® (Automatic Data Direction Control) for 2-wire and 4-wire RS-485**
- **Built-in 15 KV ESD protection for all serial signals**
- **SNMP MIB-II for network management**

Nport 52xx device servers can operate in TCP Server, TCP Client, or UDP operation mode, ensuring compatibility with software based on a standard network API (Winsock, BSD Sockets).

With the Real COM/TTY drivers that are provided with each Nport, software designed for communication with COM/TTY ports can be instantly and seamlessly integrated into a TCP/IP network. This is an excellent "no fuss" way to preserve your software investment and enjoy the benefits of networking your serial devices.



specifications

ETHERNET INTERFACE	
Speed	10/100 Mbps
Connector	8-pin RJ45
SERIAL INTERFACE	
Serial Standards	
Nport 5210	2x RS-232
Nport 5230	1 RS-232 Port, 1 RS-422/485 Port
Nport 5232	2x RS-422/485
Connectors	
Nport 5210	RJ45 (8 pins)
Nport 5230/5232	Terminal Block (5 pins per port)
SERIAL COMMUNICATION PARAMETERS	
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	RTS/CTS (RS-232 only), DTR/DRS (Nport 5210 only), XON/XOFF
Baudrate	110 bps bis 230.3 Kbps
PHYSICAL CHARACTERISTICS	
Operating temperature	0 to 55°C
Operating humidity	5 to 95% RH
Weight	ca. 380g
Dimensions	90 x 100.4 x 35mm

ordering information

part no	RS-232	RS-422	RS-485	housing types
Nport-5210	2			special
Nport-5232		2	2	special
Nport-5230	1	1	1	special
DK-35A	Mounting Kit for 35mm DIN-Rail			
SLS-500-Nport5210-Kabel 0,5m				
SLS-500-Nport5210-Kabel 1,0m				

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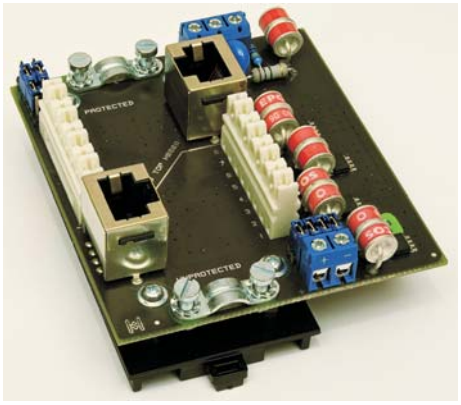
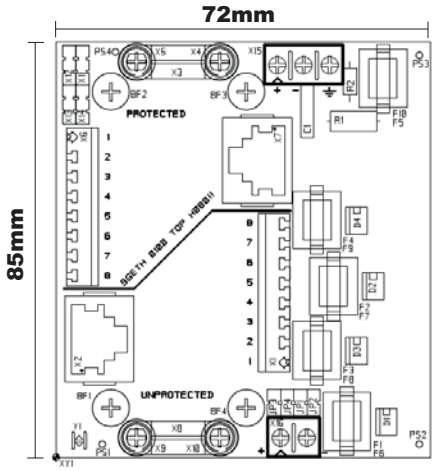
Surge Guard



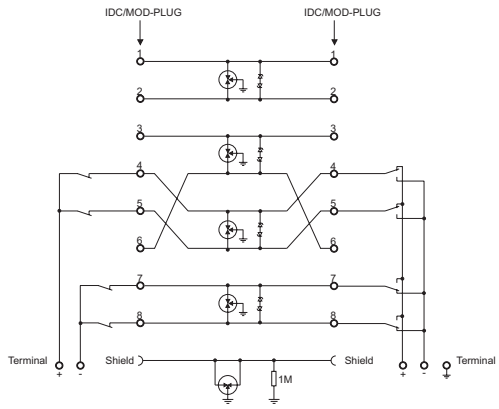
overview

- **symmetrical and asymmetrical voltage protection**
- **DIN rail mounting**
- **for cable (IDC-Connector 110+Krone type) and modular-jack-wiring**
- **as a interface between single wiring to modular-jack-wiring**
- **more options for a PoE wiring**

mechanical dimensions:



electrical wiring diagram:



specification

Line to line voltages	1:2, 3:6, 4:5, 7:8
Stand off voltage	≤ 6V
Break down voltage	≥ 6,8V @ 1mA
max. current	100A @ tp= 8/20µs
max. power	200W @ tp= 8/20µs
Line to earth (GND) volt.	(1+2) : GND
	(3+6) : GND
	(4+5) : GND
	(7+8) : GND
	Shield : GND
Stand off voltage	70 Vdc
Break down voltage	110 Vdc
Impulse break down volt.	< 450V @ 100V/µs Impulse
	< 500V @ 1000V/µs Impulse

Please note:
After a disturbance the module have to be reviewed or appropriate exchanged.

The full effect can only be guaranteed with a properly connected PE conductor.

ordering information

part no	housing types
Surge Guard	special

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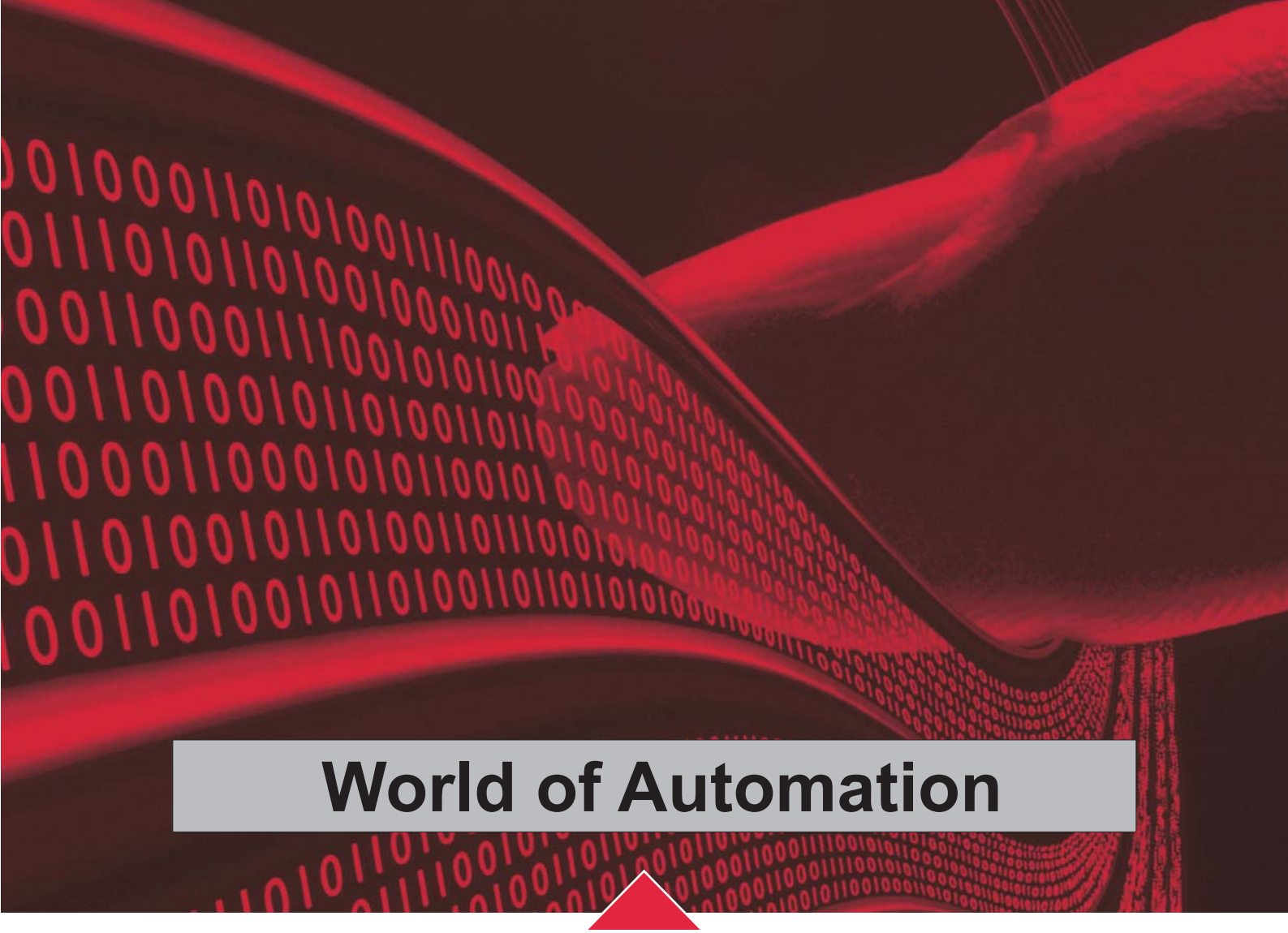

World of Automation

Chapter 5: Human Machine Interfaces

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WEB-studio

- **Visualizations for all Microsoft-supported operating systems**
- **Standalone and Web applications**
- **Integrates Windows desktop applications**
- **View multiple Web Thin client applications**
- **Publishes real-time dynamic and animated graphic screens, trends, alarms, reports, and recipes to standard WEB browsers**
- **Uses an extensive symbol library to simplify development**
- **Work with a advanced math library with more than 100 standard functions**
- **Contains a powerful, flexible tags database with Boolean, Real, String, Array tags, classes and indirect pointers**
- **More than 200 communication drivers available for different devices**
- **Provides automatic language translation at runtime**
- **Embedded VBScript interface, allowing the user to create simple or sophisticated scripts and logics directly in the objects or background tasks.**
- **Exchange data between wireless and mobile devices**
- **Perform online configuration, debugging and remote application management.**

WEB-Studio is a powerful, integrated tool that exploits key features of Microsoft® Windows® NT/2000/XP and Windows® CE, and enables you to build full featured **SCADA** (Supervisory Control And DATA Acquisition) or **HMI** (Human-Machine Interface) applications for your Industrial and Building Automation business.

ordering information

part no	tags	runtime/development	platform	simultaneous communication drivers
IWS-4000-NT-V6.1	4000	development	XP/2000/NT	5
IWS-1500-NT-V6.1	1500	development	XP/2000/NT	3
IWS-0150-NT-V6.1	150	development	XP/2000/NT	1
IWS-4000-NT-RT-V6.1	4000	runtime	XP/2000/NT	5
IWS-1500-NT-RT-V6.1	1500	runtime	XP/2000/NT	3
IWS-0150-NT-RT-V6.1	150	runtime	XP/2000/NT	1
IWS-4000-CE-RT-V6.1	4000	runtime	WinCe	5
IWS-1500-CE-RT-V6.1	1500	runtime	WinCe	3
IWS-0150-CE-RT-V6.1	150	runtime	WinCe	1

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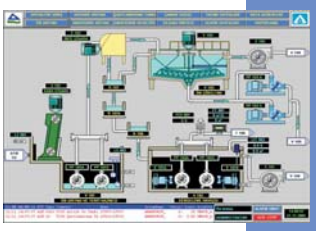
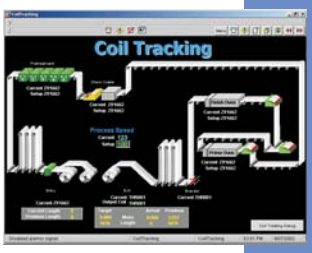
SCADA

Multi-Platform Runtime

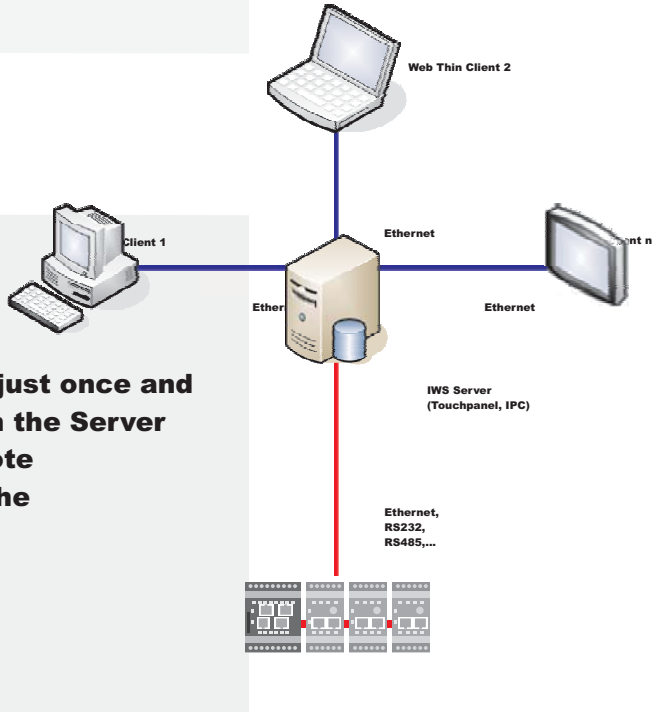
Build your application just once and run it under any platform from Windows CE up to Windows Server 2003





WEB Solution

Develop the application just once and access the screens from the Server station or from any remote Web Thin Client during the runtime.



ordering information

part no	total concurrent web session
IWS-002-WS	2
IWS-004-WS	4
IWS-008-WS	8
IWS-016-WS	16
IWS-032-WS	32
IWS-064-WS	64
IWS-128-WS	128

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HIQUEL® HIGH QUALITY ELECTRONICS

HISTAR

The HISTAR design convinces you? The assembly and easy installation is fascinating? The interchange of various design frames is a brilliant invention? But you are already using a building controler?

That's no problem with HISTAR monitor you haven't to abstain for it. Even not for the Touch Screen!

The graphic and touch screen interface is available to connect the HISTAR Monitor to any PC, building server or any kind of controler.

According to the wishes of the planners and builders, the HISTAR family can be either invisible but it can also become a significant component in the interior design. And because the design frames not only look good but can also be replaced with only one "click", everyone can choose his/her frame according to the actual mood.

THE HISTAR FITS PERFECTLY EVERY SITUATION!

© HIQUEL 2009

Frames

The installation box MU integrates the HISTAR products. The wall mounting guarantees that the HISTAR will have a maximum distance of 25mm to the surface of the wall. This gives to the HISTAR the look of a picture on the wall.

The mounting is so simple:
mounting the in-wall box, fitting HISTAR and adding the frame.
READY!

The colourful design frames are looking really beautiful. And to exchange them is done in a moment! For that reason everybody will select his own frame for its ambient or its individual room situation.
The design frame is made of high quality Perspex or anodized aluminium. Even polished or matt, the surfaces are refined and prepared for a long term usage.

ordering information

		Farbe	Material	15"	19"
HOME		roughly	aluminium	FR15-16	FR19-16
		aluminium anodised	aluminium	FR15-5	FR19-5
		bronze	aluminium	FR15-8	FR19-8
		antique RAL8025	aluminium	FR15-9	FR19-9
TOP		silvermetallic	Perspex	FR15-1	FR19-1
		smoke-green	Perspex	FR15-3	FR19-3
		anthracite	Perspex	FR15-4	FR19-4
		milk-white	Perspex	FR15-15	FR19-15
EXCLUSIVE		night-black	Perspex	FR15-2	FR19-2
		frost-red	Perspex	FR15-10	FR19-10
		zinc-yellow	Perspex	FR15-11	FR19-11
		black-green	Perspex	FR15-12	FR19-12
		black-blue	Perspex	FR15-13	FR19-13
		ultramarine-blue	Perspex	FR15-14	FR19-14

ALU + GLASS	Farbe		Material	15"	19"
	wide white		anodized aluminium + glass	FRgw15-W	
	wide black		anodized aluminium + glass	FRgw15-B	
	wide mint-green		anodized aluminium + glass	FRgw15-G	
	white		glass	FRg15-W	FRg19-W
	black		glass	FRg15-B	FRg19-B
	mint-green		glass	FRg15-G	FRg19-G

AUDIO FRxx-xx option: Speaker and microphone integrated in the front. Your order code: Add “M” on the end of the product code you choosed. ex: FR15-3-M

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HIQUEL® HIGH QUALITY ELECTRONICS

HISTAR-Audio

The Multimedia-KIT has been designed to equip the HISTAR with the following functions:

- VOIP function
- acoustic signals (ex.: warnings, messages,...)
- voice registration and playback

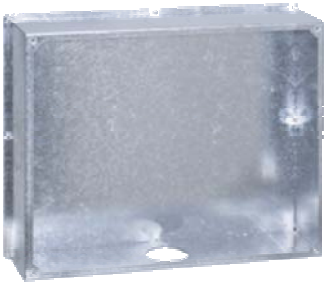
Installation:
The Multimedia-KIT is already into the front panel of compatible HISTAR configurations.
IMPORTANT:
Existing configurations can not be upgrated!
Please note that the order code changes (ex: Histar-850E-**M**)

General characteristics:

Speaker	Output S.P.L. 78+- 3dB at 1m 1W
Micro Sensitivity	+60 +/- 2dB
Double echo cancellation	ambiental and vocal echo is deleted
Echo attenuation	typically 35dB for background rumours
Constant rumour cancellation	17dB for background rumour and 40db for single tones

THE HISTAR MU

The installation box MU integrates the Histar products. The wall mounting guarantees that the HISTAR-PC will have a maximum distance of 25mm to the surface of the wall. This gives to the HISTAR the look of a picture on the wall. HISTAR-PCs are available with following display sizes: 15", 19" and fits to each application.



ordering information

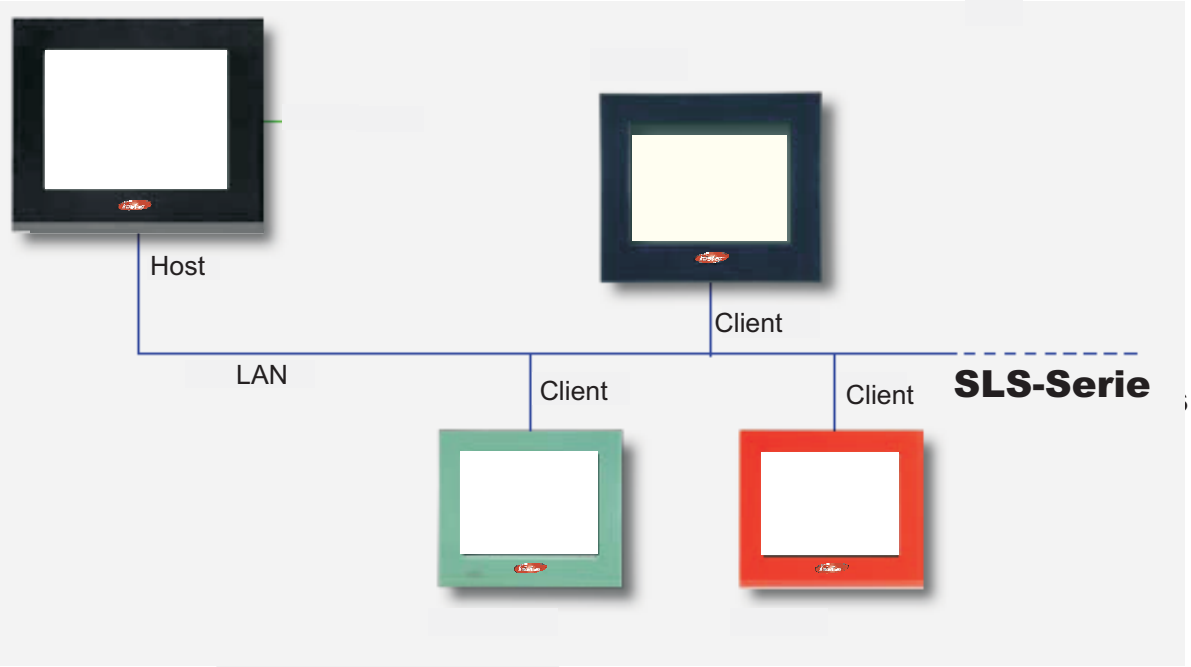
part	application
MU15	in wall mount box for walls
MU19	in wall mount box for walls
MU15T	mortarless constructions and wooden structures
MU19T	mortarless constructions and wooden structures
MU15A	wall mount box for on wall mounting

© HIQUEL 2009

system overview

The open system architecture with the pre-installed operating system Windows® Embedded lets the heart of each expert beat faster. Own and foreign software can easily be integrated and updated.
With the operating system XPembedded you will have all features of an embedded System and we have taken care for a minimum of storage volume for a system which is fast, secure and robust. Your visualization and control application for the building and facilities will be save.

All day, all night, the whole year!



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HIQUEL®
HIGH QUALITY ELECTRONICS

HTPC-670S

overview

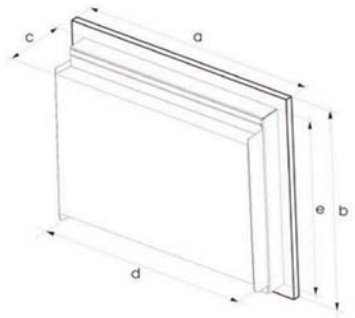
- **Intel® processor**
- **Low mounting depth**
- **High power efficiency**
- **High performance**
- **Intel PRO Chipset**
- **Dual display architecture**
- **Gigabit LAN**

The HTPC-S Series is the pinnacle of compact design in industrial PC technology. The system is compatible with any software package and suitable for any application. It is the ideal plattform for HMI and SCADA applications.

The modular design guarantees you a maximum in configuration and a various selection of different options. All reasonable characteristics for the use in a industrial environments we have already integrated: base and acid resistant, IP65/NEMA4, etc.

Top Quality and performance!

Size	15"	17"	19"	21"
a	400	460	472	540
b	310	360	383	440
c	90	95	95	110
d	370	429	440	509
e	290	337	363	406
Weight	ca. 10 kg	ca. 12 kg	ca. 13 kg	ca. 15 kg



specification

Product type	Compact Panel PC
General characteristics	
processor	Intel® Celeron M 1,5GHz Dothan
Chipset	Intel® 82852GM
memory	1 GB DDR RAM
expansion slots	1 PCI-Slot, 1 Mini PCI-Slot
operating system	Windows XP professional
power supply	90-264Vac auto range
power consumption	100W, efficiency up to 88%
mass memory	2,5" HDD at 20GB
Interfaces	
LAN/Ethernet	10/100/1000 Mbps
USB	5xUSB 2.0 (2xexternal), 3x(internal)
serial interface	2x RS232, 16 Bytes FIFO
parallel interface	1xLPT1 (EPP/ECP/SPP)
keyboard/mouse	2x PS/2
display	1 free VGA port, dual display architecture
Ambient Conditions	
temperature	+5°C to +45°C
relative humidity	5% to 80% at 25°C
vibration resistance	0,67G (5-500Mhz)

ordering information

part no	display	resolution	housing types
HTPC-670S-15	15" TFT-Display	1024x768 Pixel	special
HTPC-670S-17	17" TFT-Display	1280x1024 Pixel	special
HTPC-670S-19	19" TFT-Display	1280x1024 Pixel	special
HTPC-670S-21	21" TFT-Display	1600x1200 Pixel	special

*Also other hardware and software configurations are available

HIQUEL® HIGH QUALITY ELECTRONICS

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HPC-600S

overview

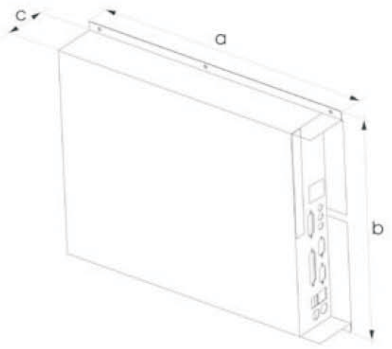
- **Long term availability**
- **High performance**
- **Low mounting depth**
- **High configuration flexibility**
- **High grade industrial components**
- **PCI-Slot for expansions**

The demand for qualities of industrial PC's are as various as their application. In an application is a system without fan a "must" in the others maximum performance belongs. How the entitlement to benefits design and flexibillity also belong so. Therefore, HIQUEL in its modular concept has moved the " front UNIT " from the " PC UNIT " as a separable system.
Every " PC UNIT " can act as an independent unity.

Display unities like the HM-200 or the Histar-200 can be connected in different sizes. Not only ergonomic operator panels can be thereby generated, also damages can be turned away from the PC UNIT already in the approach.

HPC is called the solution if the industrial PC in the switch cabinet should be mounted. The HPC leaves open no wishes in the design and configuration!

Dimensions	
a	368
b	289
c	85
Weight	ca. 7 kg



specification

Product type	Compact box PC
General characteristics	
processor	Intel® Pentium 4 > 2,0GHz
chipset	Intel® FW82845GV
memory	1 GB DDR RAM
expansion slots	1 PCI-Slot
operating systems	Windows XP professional
power supply	115/230Vac switchable
power consumption	220W
mass memory	2,5" HDD at 20GB
optical drives	CD-Rom
Interfaces	
LAN/Ethernet	10/100 Mbps
USB	6xUSB 2.0 (2x ext., 4x int.)
serial interface	2x RS232 (1x ext., 1x int.)
parallel interface	1xLPT1 (EPP/ECC)
keyboard/mouse	2x PS/2
video interface	1xVGA
Ambient Conditions	
temperature	+5°C to +45°C
relative humidity	5% to 80% at 25°C
vibration resistance	0,67G (5-500Mhz)

ordering information

part no	housing types
HPC-600S	special

*Also other hardware and software configurations are available

HPC-600S Compact box PC

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HIQUEL® HIGH QUALITY ELECTRONICS

HTPC-870E Ultracompact embedded Panel PC

HTPC-870E

overview

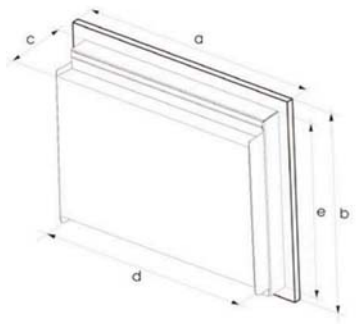
- **high reliability**
- **Ultra compact dimensions**
- **Low mounting depth**
- **Very low power requirements**
- **Intel Pentium Prozessor**
- **Extreme high stability of operating system**
- **Motionless, no moving parts**

The maintenance-free and extremely efficient embedded HTPC-E family compines the frontUNIT with intelligentUNIT to a robust embedded PC.

The HTPC-E family offers you the ideal partner for the latest automation environment.
A universal panel system will help you create and implement the most varied automation solutions.

With the operating system
Microsoft WindowsXP embedded
we have a save system for every application.

size	12”	15”	17”	19”	21”
a	400	400	460	472	540
b	310	310	360	383	440
c	90	90	95	95	110
d	370	370	429	440	509
e	290	290	337	363	406
weight	ca. 10 kg	ca. 10 kg	ca. 12 kg	ca. 13 kg	ca. 15 kg



specification

Product type	Compact embedded Panel PC
General characteristics	
processor	Intel Pentium M Dothan, 2MB
	L2C start from 725 - 1,6GHz fan
chipset	Intel 82852GM GMCH+
	82801DB ICH4
memory	1 GB DDR RAM
expansion slot	1 PCI-Slot, 1 Mini PCI-Slot
operating system	Windows XP embedded
power supply	90-264 Vac auto range
power consumption	40W with 15” display
mass memory	DOM at 512MB
additional drives	CFC-Adapter
Interfaces	
LAN/Ethernet	Intel Pro GIGABIT LAN
USB	5x USB 2.0
serial interface	2x RS-232, 16 Bytes FIFO
keyboard/mouse	2x PS/2
Ambient Conditions	
temperature	+5°C to +45°C
relative humidity	5% to 80% at 25°C
vibration resistance	15G
shock resistance	50G

ordering information

part no	display	resolution	housing types
HTPC-870E-12	12” TFT-Display	800x600 Pixel	special
HTPC-870E-15	15” TFT-Display	1024x768 Pixel	special
HTPC-870E-17	17” TFT-Display	1280x1024 Pixel	special
HTPC-870E-19	19” TFT-Display	1280x1024 Pixel	special
HTPC-870E-21	21” TFT-Display	1600x1200 Pixel	special

*Also other hardware and software configurations are available

HIQUEL® HIGH QUALITY ELECTRONICS
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HPC-870E

overview

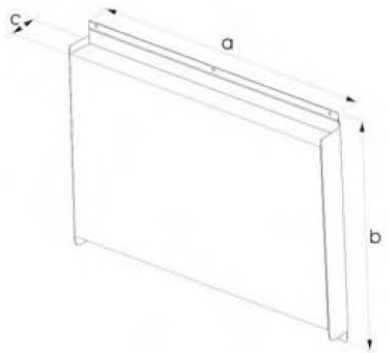
- **High reliability**
- **Ultra compact dimensions**
- **Low mounting depth**
- **Very low power requirements**
- **AMD Geode™ processors**
- **Embedded system**
- **Extreme high stability of operating system**

The demand for qualities of industrial PC's are as various as their application. In an application is a system without fan a "must" in the others maximum performance belongs. How the entitlement to benefits design and flexibillity also belong so. Therefore, HIQUEL in its modular concept has moved the " front UNIT " from the " PC UNIT " as a separable system.
Every " PC UNIT " can act as an independent unity.

Display unities like the HM-200 or the Histar-200 can be connected in different sizes. Not only ergonomic operator panels can be thereby generated, also damages can be turned away from the PC UNIT already in the approach.

HPC is called the solution if the industrial PC in the switch cabinet should be mounted. The HPC leaves open no wishes in the design and configuration!

Dimensions	
a	368
b	289
c	55
Weight	ca. 6 kg



specification

product type	Compact embedded Box PC
General characteristics	
processor	Intel Pentium M Dothan, 2MB L2C
	start from 725 - 1,6 GHz fan
chipset	Intel 82852 GM GMCH+
	82801DB ICH4
memory	1 GB DDR RAM
expansion slot	1 PCI-Slot, 1 Mini PCI-Slot
operating system	Windows XP embedded
power supply	90-264 Vac auto range
power consumption	25W
mass memory	DOM at 512MB
additional drives	CFC-Adapter
Interfaces	
LAN/Ethernet	Intel Pro GIGABIT LAN
USB	6x USB 2.0
serial interface	2x RS-232, 16 Bytes FIFO
keyboard/mouse	2x PS/2
video interface	1x VGA Port
Ambient Conditions	
temperature	+5°C to +45°C
relative humidity	5% to 80% at 25°C
vibration resistance	15G
shock resistance	50G

ordering information

part no	housing types
HPC-870E	special

*Also other hardware and software configurations are available

HPC-870E Ultracompact embedded Box PC

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HIQUEL® HIGH QUALITY ELECTRONICS

Histar-870E embedded PC for wall mount

Histar-870E

overview

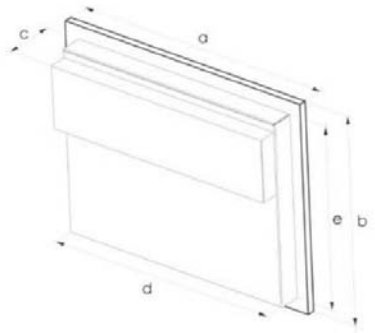
- **Home PC with industrial hardware**
- **Easy assembly and installation**
- **Interchange of various design frames**
- **Graphic and touch screen interface**
- **Various connectable**
- **High performance with Windows XP embedded**

HIQUEL offers with the product family HISTAR various products. With HISTAR PC-Touch you will have all advantages of the HISTAR product range and the boundaryless freedom to integrate your own software ideas.

With the operating system WindowsXP embedded you willhave all features of an embedded System and we have taken care for a minimum of storage volume for a system which is fast, secure and robust.
Your visualization and control application for the building and facilities will be save.

All day, all night, the whole year!

Size	15"	19"
Cut-Out MUxx	399x336x90	472x410x90
Outside with frame	425x365x25	497x435x25
Weight	ca. 9 kg	ca. 11 kg



specification

product type	Compact embedded Box PC
General characteristics	
processor	Intel Pentium M Dothan, 2MB L2C
	start from 725 - 1,6 GHz fan
chipset	Intel 82852 GM GMCH+
	82801DB ICH4
memory	1 GB DDR RAM
expansion slot	1 PCI-Slot, 1 Mini PCI-Slot
operating system	Windows XP embedded
power supply	90-264 Vac auto range
power consumption	25W
mass memory	DOM at 512MB
additional drives	CFC-Adapter
Interfaces	
LAN/Ethernet	Intel Pro GIGABIT LAN
USB	6x USB 2.0
serial interface	2x RS-232, 16 Bytes FIFO
keyboard/mouse	2x PS/2
video interface	1x VGA Port
Ambient Conditions	
temperature	+5°C to +45°C
relative humidity	5% to 80% at 25°C
vibration resistance	15G
shock resistance	50G

ordering information

Ordering information of the frames you can find on page 1:51.

part no	display	resolution	Histar-Audio	housing types
Histar-870E-15	15" TFT-Display	1024x768 Pixel	no	special
Histar-870E-19	19" TFT-Display	1280x1024 Pixel	no	special
Histar-870E-15-M	15" TFT-Display	1024x768 Pixel	yes	special
Histar-870E-19-M	19" TFT-Display	1280x1024 Pixel	yes	special

*Also other hardware and software configurations are available
*Delivery without frame.

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HTPC-850E

overview

- **High performance**
- **High grade industrial components**
- **VIA C7 processor**
- **1 GB RAM**
- **Via PCI-Slot and CF-Card Adapter expandable**
- **Save softwaresystem with WindowsXP embedded**
- **no moving parts**

The maintenance-free and extremely efficient embedded HTPC-E family compines the frontUNIT with intelligentUNIT to a robust embedded PC.

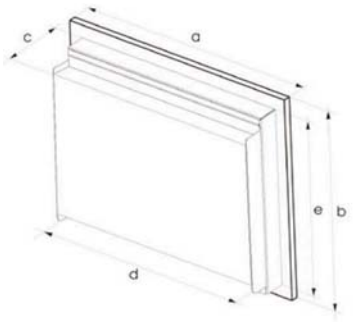
The HTPC-E family offers you the ideal partner for the latest automation environment.
A universal panel system will help you create and implement the most varied automation solutions.

With the operating system Microsoft WindowsXP embedded we have a save system for every application.

specification

Product type	Compact embedded Panel PC
General characteristics	
processor	VIA C7 1Ghz fanless
chipset	VIA CN700 + 8237R plus
memory	1 GB DDR RAM
expansion slots	1 PCI Slot
operating system	Windows XP embedded
power supply	90-260Vac fanless
power consumption	35W with 15" Display
mass memory	DOM 2GB
additional drives	Compact Flash Reader
Interfaces	
LAN/Ethernet	2x 10/100Mbps
USB	4x USB 2.0
serial interface	1x RS232
parallel interface	1x LPT1 (EPP/ECP/SPP)
keyboard/mouse	2x PS/2
Ambient Conditions	
temperature	+5°C to +45°C
relative humidity	5% to 80% at 25°C
vibration resistance	15G
shock resistance	50G

Size	15"	17"	19"	21"
a	400	460	472	540
b	310	360	383	440
c	90	95	95	110
d	370	429	440	509
e	290	337	363	406
Weight	ca. 10 kg	ca. 12 kg	ca. 13 kg	ca. 15 kg



ordering information

part no	display	resolution	housing types
HTPC-850E-15	15" TFT-Display	1024x768 Pixel	special
HTPC-850E-17	17" TFT-Display	1280x1024 Pixel	special
HTPC-850E-19	19" TFT-Display	1280x1024 Pixel	special
HTPC-850E-21	21" TFT-Display	1600x1200 Pixel	special

*Also other hardware and software configurations are available

HTPC-850E Compact embedded Panel PC

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HIQUEL® HIGH QUALITY ELECTRONICS

HPC-850E

overview

- **High performance**
- **High grade industrial components**
- **VIA C7 processor**
- **1 GB RAM**
- **Via PCI-Slot and CF-Card Adapter expandable**
- **Save softwaresystem with WindowsXP embedded**
- **no moving parts**

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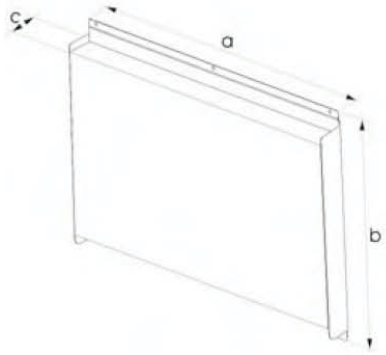
Dimensions	
a	368
b	289
c	55
Weight	ca. 6 kg



specification

Product type	Compact embedded box PC
General characteristics	
processor	VIA C7 1Ghz fanless
chipset	VIA CN700 + 8237R plus
memory	1 GB DDR RAM
expansion slots	1 PCI Slot
operating system	Windows XP embedded
power supply	90-260Vac fanless
power consumption	20W
mass memory	DOM 2GB
additional drives	Compact Flash Reader
Interfaces	
LAN/Ethernet	2x 10/100Mbps
USB	4x USB 2.0
serial interface	1x RS232
parallel interface	1x LPT1 (EPP/ECP/SPP)
keyboard/mouse	2x PS/2
video interface	1x VGA-Port
Ambient Conditions	
temperature	+5°C to +45°C
relative humidity	5% to 80% at 25°C
vibration resistance	15G
shock resistance	50G

ordering information

part no	housing types
HPC-850E	special

*Also other hardware and software configurations are available

HIQUEL® HIGH QUALITY ELECTRONICS

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Histar-850E

overview

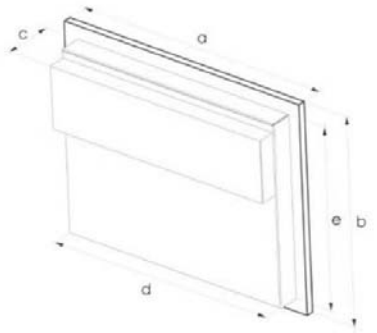
- **Home PC with industrial hardware**
- **Easy assembly and installation**
- **Interchange of various design frames**
- **Graphic and touch screen interface**
- **Various connectable**
- **High performance with Windows XP embedded**
- **no moving parts**

HIQUEL offers with the product family HISTAR various products. With HISTAR PC-Touch you will have all advantages of the HISTAR product range and the boundaryless freedom to integrate your own software ideas.

With the operating system WindowsXP embedded you will have all features of an embedded System and we have taken care for a minimum of storage volume for a system which is fast, secure and robust.
Your visualization and control application for the building and facilities will be save.

All day, all night, the whole year!

Size	**15"**	**19"**
Cut-Out MUxx	399x336x90	472x410x90
Outside with frame	425x365x25	497x435x25
Weight	ca. 9 kg	ca. 11 kg



specification

Product type	embedded PC for wall mount
General characteristics	
processor	VIA C7 1Ghz fanless
Chipset	VIA CN700 + 8237R plus
memory	1 GB DDR RAM
expansion slots	1 PCI Slot
operating system	Windows XP embedded
power supply	90-260Vac fanless
power consumption	35W with 15" Display
mass memory	DOM 2GB
additional drives	Compact Flash Reader
Interfaces	
LAN/Ethernet	10/100Mbps
USB	7x USB 2.0 (1x ext., 4x int.
	2x front accessible)
serial interface	2x RS232 (1x ext., 1x int.)
parallel interface	1x LPT1 (EPP/ECP/SPP)
keyboard/mouse	2x PS/2
Ambient Conditions	
temperature	+5°C to +45°C
relative humidity	5% to 80% at 25°C
vibration resistance	15G
shock resistance	50G

ordering information

Ordering information you can find on page 1:51.

part no	display	resolution	Histar-Audio	housing types
Histar-850E-15	15" TFT-Display	1024x768 Pixel	no	special
Histar-850E-19	19" TFT-Display	1280x1024 Pixel	no	special
Histar-850E-15-M	15" TFT-Display	1024x768 Pixel	yes	special
Histar-850E-19-M	19" TFT-Display	1280x1024 Pixel	yes	special

*Also other hardware and software configurations are available
*Delivery without frame.

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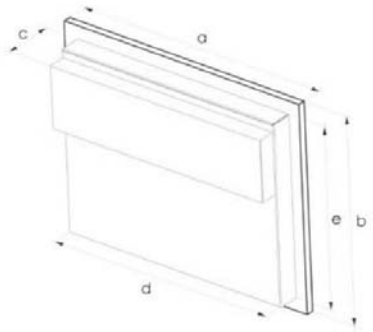
Histar-200

overview

- **Low profile**
- **Luminosity up to 430cd/m²**
- **Contrast up to 800:1**
- **Screen size 15" and 19"**
- **VGA- or DVI- Interface**

Monitor concepts are used especially if there is not enough space for HMI units, panel PC´s or CRT screens in the enclosure or the operator desk.
In combination with the HIQUEL PC BOX a complete PC based system can be configurated.
Histar-200 industrial monitors we deliver with highbrightness TFT displays in a range from 15” up to 21” and integraded Touch Screen.

Size	15"	19"
Cut-Out MUxx	399x336x90	472x410x90
Outside with frame	425x365x25	497x435x25
Weight	ca. 5 kg	ca. 7 kg



specification

Product type	Compact industrial monitor
General characteristics	
power supply	90-264 Vac autorange
power consumption	30W for 15" display
Front unit	
MTBF backlight tubes	50.000 h
method of operating	resistive Touchscreen, 6 wire technology
rating	IP65 according EN 60529
touchcontroller	USB
Interfaces	
VGA/DVI	VGA or DVI-Output
Touch	USB
Ambient Conditions	
temperature	+5°C to +45°C
relative humidity	5% to 80% at 25°C
vibration resistance	0,67G (5-500Mhz)
shock resistance	300G/2ms

ordering information

Ordering information you can find on page 1:51.

part no	display	resolution	Histar-Audio	housing types
Histar-200-15-VGA	15" TFT-Display	1024x768 Pixel	no	special
Histar-200-15-DVI	15" TFT-Display	1024x768 Pixel	no	special
Histar-200-15-VGA-M	15" TFT-Display	1024x768 Pixel	yes	special
Histar-200-15-DVI-M	15" TFT-Display	1024x768 Pixel	yes	special
Histar-200-19-VGA	19" TFT-Display	1280x1024 Pixel	no	special
Histar-200-19-DVI	19" TFT-Display	1280x1024 Pixel	no	special
Histar-200-19-VGA-M	19" TFT-Display	1280x1024 Pixel	yes	special
Histar-200-19-DVI-M	19" TFT-Display	1280x1024 Pixel	yes	special

*Also other hardware and software configurations are available
*Delivery without frame

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HM-200

overview

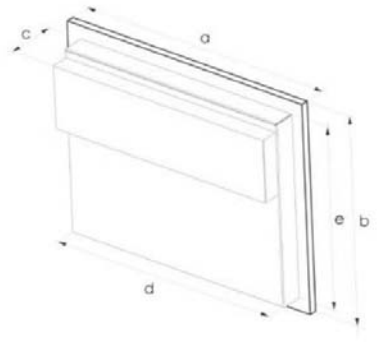
- **Low profile**
- **Luminosity up to 430cd/m²**
- **Contrast up to 800:1**
- **Screen size from 15" to 21"**
- **VGA- or DVI- Interface**

Monitor concepts are used especially if there is not enough space for HMI units, panel PC´s or CRT screens in the enclosure or the operator desk.
In combination with the HIQUEL PC BOX a complete PC based system can be configurated.
HM 200 industrial monitors we deliver with highbrightness TFT displays in a range from 15” up to 21” and integraded Touch Screen.

specification

Product type	Compact industrial monitor
General characteristics	
power supply	90-264 Vac autorange
power consumption	30W for 15" display
Front unit	
MTBF backlight tubes	50.000 h
method of operating	resistive Touchscreen, 6 wire technology
rating	IP65 according EN 60529
touchcontroller	USB
Interfaces	
VGA/DVI	VGA or DVI-Output
Touch	USB
Ambient Conditions	
temperature	+5°C to +45°C
relative humidity	5% to 80% at 25°C
vibration resistance	0,67G (5-500Mhz)
shock resistance	300G/2ms

Size	**15"**	**17"**	**19"**	**21"**
a	400	460	472	540
b	310	360	383	440
c	115	120	120	135
d	370	429	440	509
e	290	337	363	406
Weight	ca. 4 kg	ca. 5 kg	ca. 6 kg	ca. 7 kg
Luminosity	430	300	300	250
Contrast	450:1	700:1	800:1	500:1



ordering information

part no	display	resolution	housing types
HM-200-15-VGA	15" TFT-Display	1024x768 Pixel	special
HM-200-15-DVI	15" TFT-Display	1024x768 Pixel	special
HM-200-17-VGA	17" TFT-Display	1280x1024 Pixel	special
HM-200-17-DVI	17" TFT-Display	1280x1024 Pixel	special
HM-200-19-VGA	19" TFT-Display	1280x1024 Pixel	special
HM-200-19-DVI	19" TFT-Display	1280x1024 Pixel	special
HM-200-21-VGA	21" TFT-Display	1600x1200 Pixel	special
HM-200-21-DVI	21" TFT-Display	1600x1200 Pixel	special

*Also other hardware and software configurations are available

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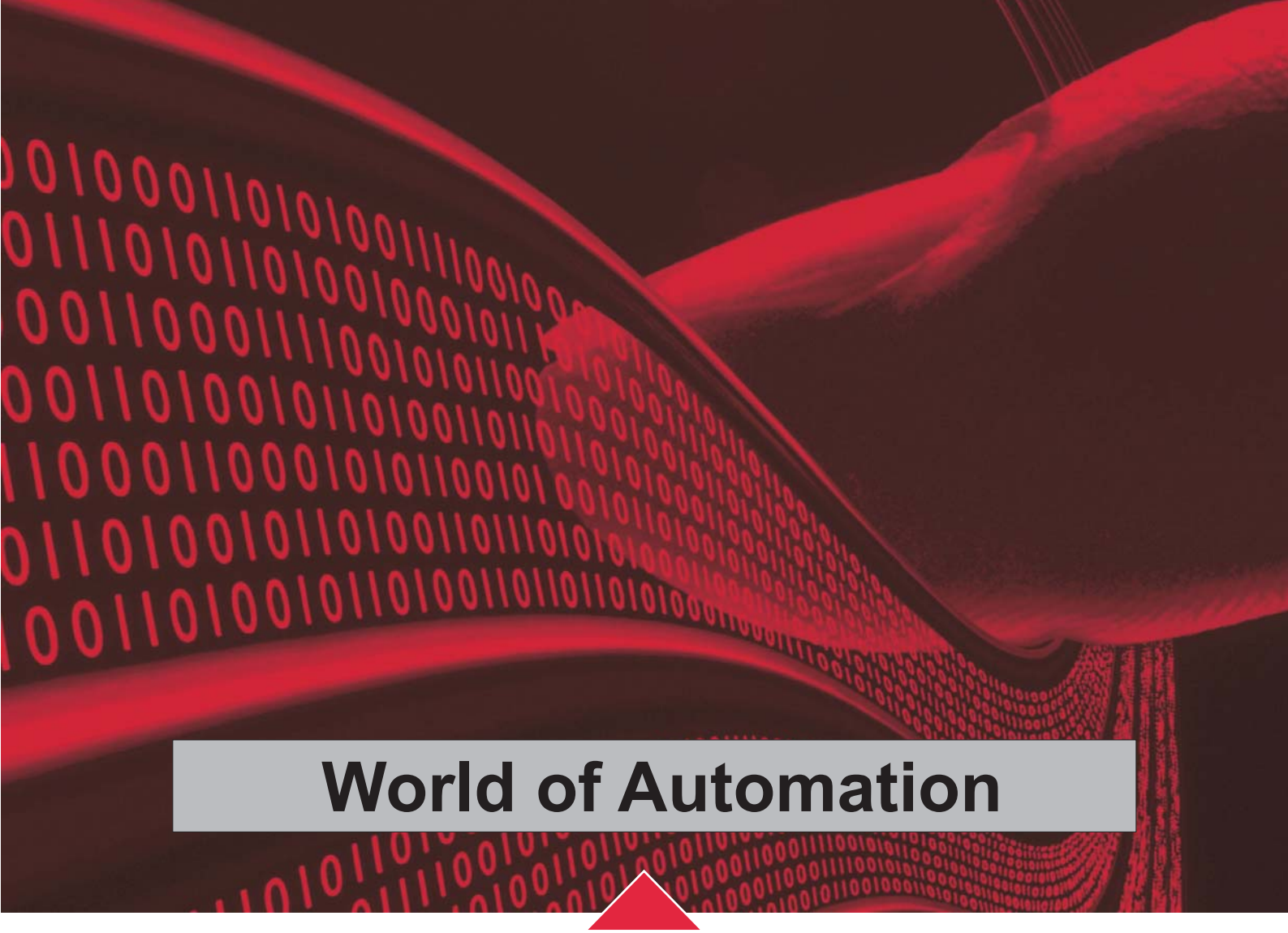

World of Automation

Chapter 6: Alarming

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6 Chapter 6: Alarming

.01 INFO SMS-Master

.02 SMS-Master Starter Kits & programming

.03 SMS-Master and SMS-Mini Master base modules

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SMS-Master

Monitor and Control via SMS

The SMS-Master Controller offers a low cost solution for monitoring and controlling systems via SMS. Using digital, analogue or time events the SMS-Master sends pre-configured messages to mobile phone/s informing about operating states of machines, heating system, or other installations.

- analogue inputs with real unit scaling
- single user alert
- group user alert
- with or without report
- via SMS (text), fax or e-mail

Applications:

- machine control
- engineer call-out
- liquid level control
- pump control
- pressure control
- heating or cooling system control
- irrigation control
- storage control
- lighting control
- traffic light control
- access control
- holiday house control
- etc...

Monitor and check your facility!

alarm, inform, control with SMS -Master

Uninterruptable power supply

Power failure alarm with UPS24

- UPS24, uninterruptible power supply with battery-pack
- LED indicators for power supply and actual state of wiring.
- Output 24V= / 110mAh
- Power failure alarm with UPS24 / Battery-Pack
- Power for 4 hours with UPS24 / Battery-Pack

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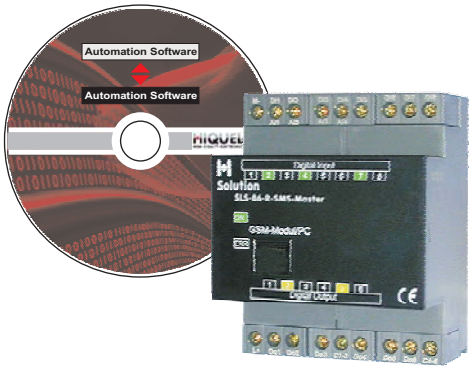
Starter Kits

SMS-Master, SMS-MINI-Master

overview

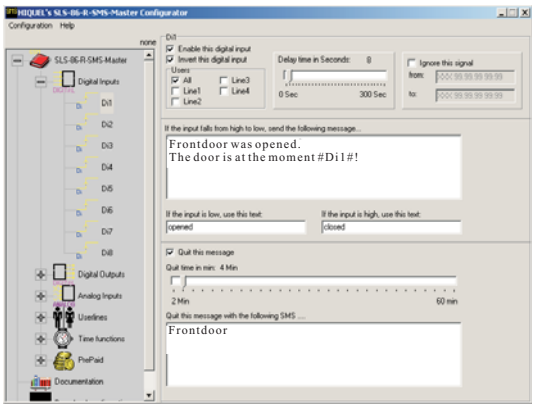
all you need to get you going - a starter kit: SMS-Master and SMS-MINI-Master

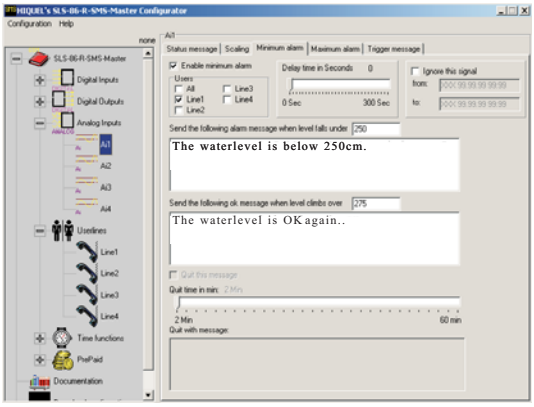


includes:

- **SLS-86-R-SMS-Master 24V= or SLS-43-R-SMS-Master 24V= basic module**
- **cables (programming cable, etc.)**
- **CD-ROM SMS-Master software**
- **GSM-module (modem)**
- **manual**
- **aerial**

The SMS-Master is a flexible alarming and messaging system that receives and sends messages to mobile-phones, fax or e-mail. It automatically generates reports of machine operating states, such as breakdowns. Incoming text messages can control functions and interrogate I/O status, with real unit reports of analogue levels e.g. Bar, Degrees C, level in Meters etc. Both SMS master controller can be programmed to monitor the four analogue inputs for threshold violation. If threshold values are passed, a message is sent with the analogue level converted into real units. E.g. Water level in **meters**, pressure in **PSI** or **Bar,** Temperature in **°C.** Queries of analogue **signals** with **scaling** of current values are possible. The digital outputs can be switched on or off, or pulsed for a programmable period simply by sending a text message instruction.
The SMS-Master features 8 DI or 4 AI (0-10V) & 4 DI AND 6 relay outputs, the SMS-MINI-Master has 4 DI or 2 AI (0-10V) & 2 DI AND 3 relay outputs.





Programming with SMS-Configurator:

- all settings are executed in a dialogue oriented way
- clearly structured navigation tree shows all configuration possibilities graphically
- all messages and telephone numbers can be entered individually and changed easily at any time
- status SMS for all 4 inputs
- for each AI a scaling of the analogue signal and a min. and max. alarm threshold can be configured
- integrated real time clock for 100 days stand by
- optionally SMS can be send if a defined critical value is reached via pre-paid cards
- SMS can be send at a given time, to one or several persons simultaneously or after a defined delay time sequentially
- different modes of report:
  - each SMS can be send to up to 4 different user groups
  - each user group can contain up to 64 telephone numbers
  - each user group has different modes of alarming and reporting

ordering information

part no	
SLS-86-R-SMS-Kit-24	SLS-86-R-SMS-Master + GSM-module (modem) + SMS-Master-Software + manual + aerial
SLS-86-R-SMS-Kit-12	SLS-86-R-SMS-Master + GSM-module (modem) + SMS-Master-Software + manual + aerial
SLS-43-R-SMS-Kit-24	SLS-86-R-SMS-Master + GSM-module (modem) + SMS-Master-Software + manual + aerial
SLS-43-R-SMS-Kit-12	SLS-86-R-SMS-Master + GSM-module (modem) + SMS-Master-Software + manual + aerial

* recommended power supply unit TPS3 (see catalogue 01:30)

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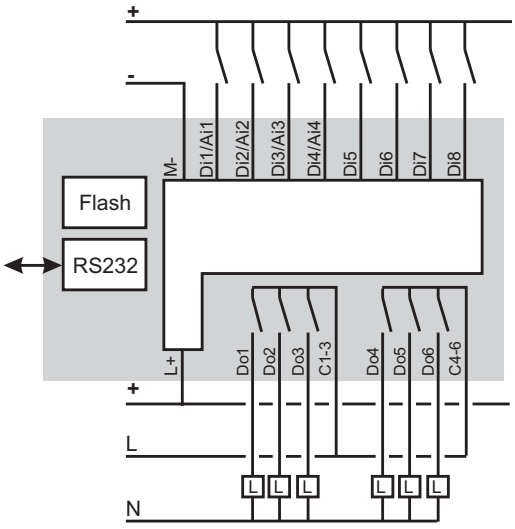
SMS-Master modules

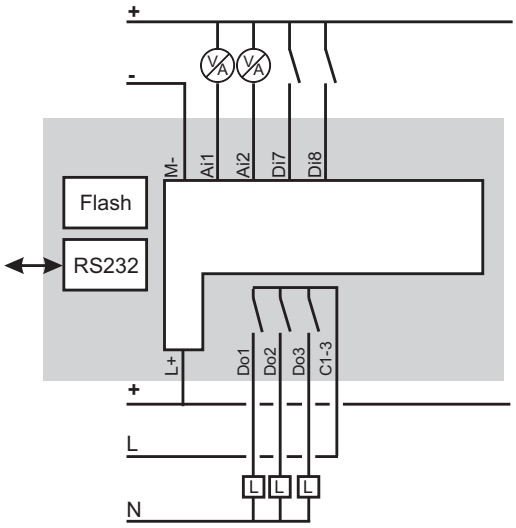
overview

- **GSM (text) master controller**
- **supply voltage 24V= or 12V=**
- **8 and 4 digital inputs 24V= inputs, 4 and 2 are dual digital/analogue 0-10V respectively**
- **6 and 3 SPNO outputs, max. 5A respectively**
- **RS232 interface for programming**
- **LED indicators for inputs and outputs**
- **4 caller groups with up to 64 dial out numbers per group, together or sequentially**
- **integrated RTC with 100 days back up**
- **credit check of your pre-paid card**
- **UPS24 allows sending of a message to report a power failure with 4 hour backup**
- **67.5mm DIN rail mount housing**
- **configuration with SMS-Master software**

SMS-Master:



SMS-MINI-Master:



specification

supply voltage	24V= ±10%
power consumption	1W nominal
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
expected life time	SPNO
mechanical	1 x 10^7 operations
electrical	1 x 10^5 operations
input specification	24V= max. 5 mA
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	210g
dimensions	67,5 x 85 x 75mm

*EN 60947-5-1 VDE 0435

ordering information

part no	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-86-R-SMS-24"	24V=	8x 24V=	no	6x SPNO	yes	E
SLS-86-R-SMS-12"	12V=	8x 12V=	no	6x SPNO	yes	E
SLS-Std-RS232	download cable					
SLS-43-R-SMS-MINI-24"	24V=	4x 24V=	no	3x SPNO	yes	E
SLS-43-R-SMS-MINI-12"	12V=	4x 12V=	no	3x SPNO	yes	E
TC35-PS	Spannungsversorgungskabel für TC35					
TC35	GSM-Modul und Antenne					

* Bestellbezeichnungen für diverse Fühler finden Sie auf Seite 3:23

* Keine elektrische Verbindung zur Versorgung (galvanisch getrennt)

" beinhalten master modul, SMS-Config, Downloadkabel und Handbuch

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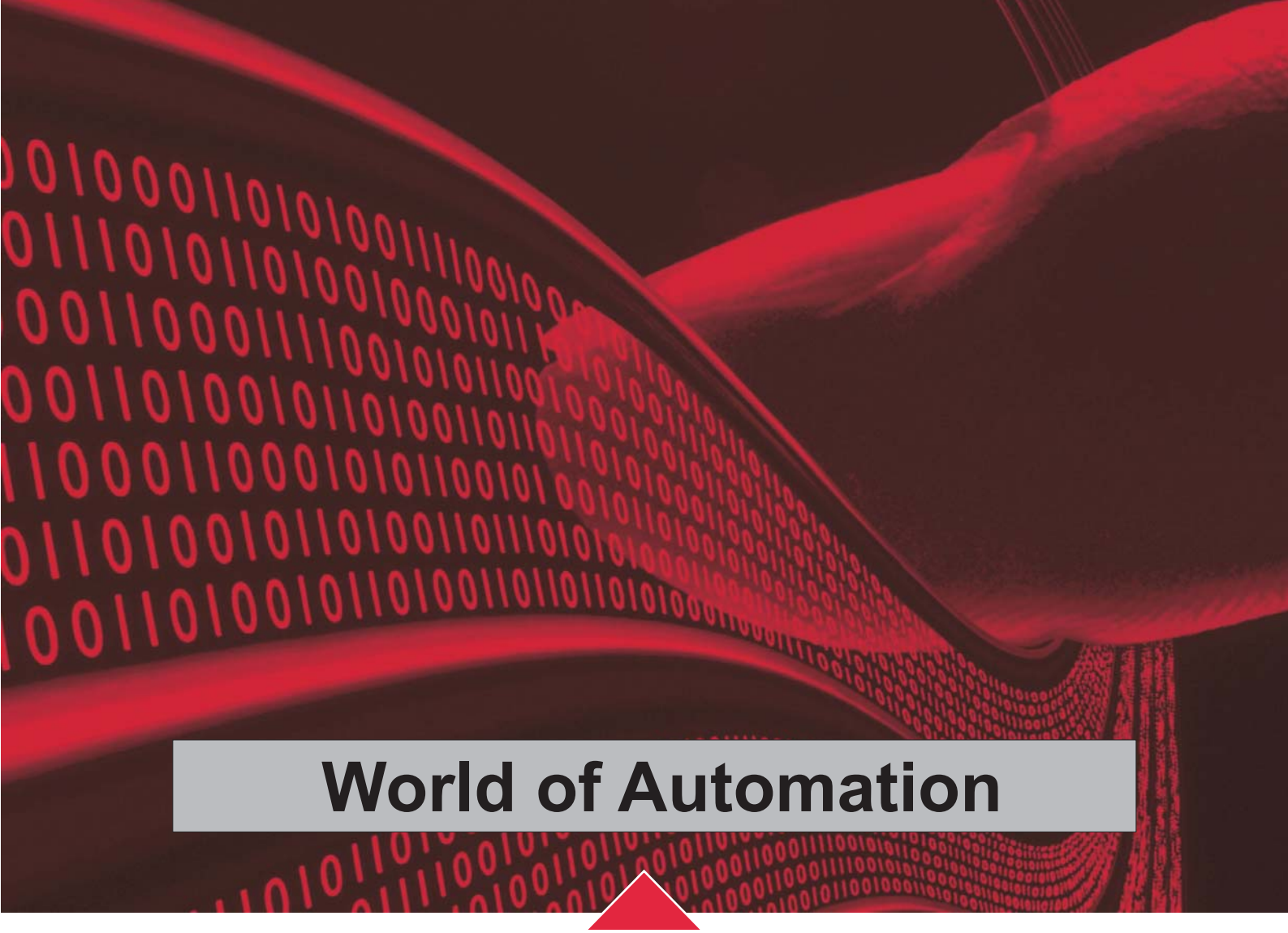

World of Automation

Chapter 7: SLS-86 Series

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7 Chapter 7: SLS-86 Series

.01 INFO SLS-86 series
.02 INFO SLS-86 programming
.03 INFO bit processing
.04 INFO overview compact modules HI-86
.05 HI-86 Starter Kit & minimodule
.06 SLS-86-R Starter Kit & base module
.07 SLS-D
.08 SLS-D..-16A
.09 SLS-8DI
.10 SLS-8D
.11 SLS-FBR
.12 SLS-PTC
.13 SLS-PT100
.14 SLS-PT1000
.15 SLS-AU
.16 SLS-AI

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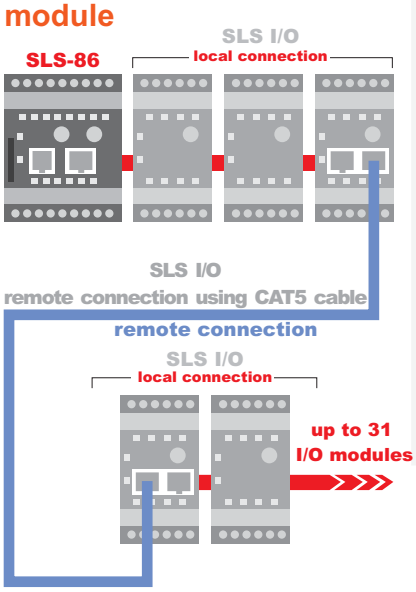
SLS-86 Series

Bit processing

The PLC-series SLS-86 is a central and/or distributed PLC system with a modular concept. HI-86 is the compact control of the SLS-86 series.

The base module allows easy and cost-effective communication with up to 31 different expansion modules over a bus length of up to 600m. The modules can be connected either locally by recessed side connectors for side by side DIN rail mounting or remotely via CAT5 cable.

SLS-86 base module



SLS-86 expansion modules

Connection: local and remote versions of all modules available

- digital input modules 24Vdc or 100-240Vac
- digital output modules, relays, transistor or photomos
- analogue I/O modules 0-10V or 0-20mA
- temperature detection modules for PTC, Pt100- and PT1000 sensors
- 16bit analogue input modules; 0-10V or 0-20mA
- room temperature detection modules with 4 inputs
- room temperature controller

Programming without special software knowledge, suitable for small (8/6 I/O) and medium sized (up to 250 I/O) applications.
The SOLUTION SLS86 is a modular programmable (intelligent) relay that can be used in many fields including **industrial control, automation,** and **building management.**
The **base module SLS 86** has 8 digital inputs (4 dual digital or analogue), and 6 relay outputs.
The user program memory is 8kB with 64kB internal flash and a SIM-card for program copy and module to module data transfer.
A range of **extension modules** (digital, analogue, PTC, PT100, PT1000, FBR) is available. Output types are relay, photomos (solid state) or transistor.
The base module can communicate with up to 31 extension modules via recessed side connectors for side by side DIN rail mounting **(local)** or via CAT5 cable **(remote)**. Up to 250 I/O can be distributed over a maximum distance of 600m.
Analogue values can be set by potentiometers located on the front plate or by PC. Communication with HIQUEL TERM4 is possible using the host switches and host relay functions.

The HI-86 is a compact programmable (intelligent) relay that can be used in many fields.
The **minimodule HI-86** has 8 digital inputs (20-250Vac/dc) and 6 relay outputs (5Amp). The user program memory is 8kB. The RS 232 interface can be used for programming and monitoring. The HI-86 also features a SIM-card for easy program copy and module to module data transfer.

Applications:

- industrial automation
- process control
- building automation
- transport system
- machine control
- pump control
- lighting control
- heating control
- hydraulic systems
- bespoke systems

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Programming

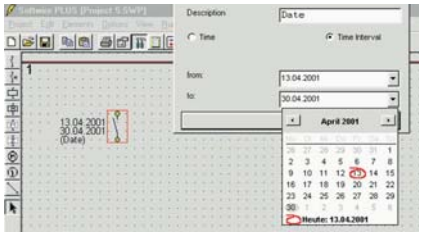
SoftWIRE and SoftwirePLUS are programs that are simple yet powerful CAD style wiring ladder diagram programs.

Series: SLS-86, HI-86

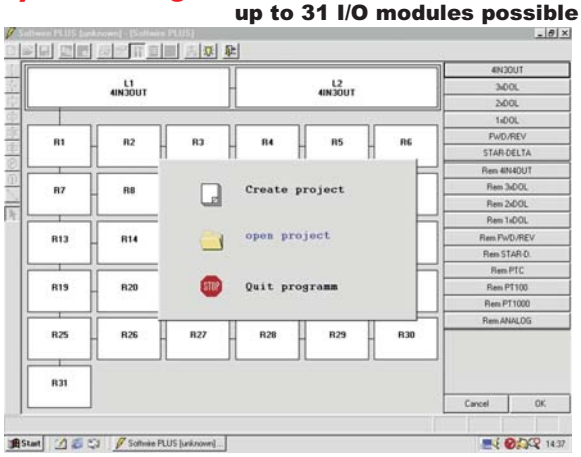
SoftwirePLUS:

Programming without special software knowledge.
The SLS-86 base module is programmed with SoftwirePlus, using the principle of a wiring ladder diagram for programming.
Many pre-programmed software modules are included such as star-delta start, DOL (direct on line) motor start, timing functions, output functions (on/off, set/reset, bi-stable), counters (non-volatile and volatile with 8 set points each) and a universal real time clock with calendar. The **Real Time Clock** can be programmed easily for point of time switching, (to perform a function at a fixed time/date) or time interval switching, (to perform a function between two times, dates, weeks, years etc). Days of the week, weeks of the year, days, months, years, date and time can be combined without problems.
SoftwirePlus features on-line monitoring and status display of all I/O's and internal program elements on the PC. It also automatically creates **complete paper documentation** (wiring diagram, program elements and cross-reference list).
All program element addresses are automatically allocated and it is simple to change the screen and printout language into English, German, Italian

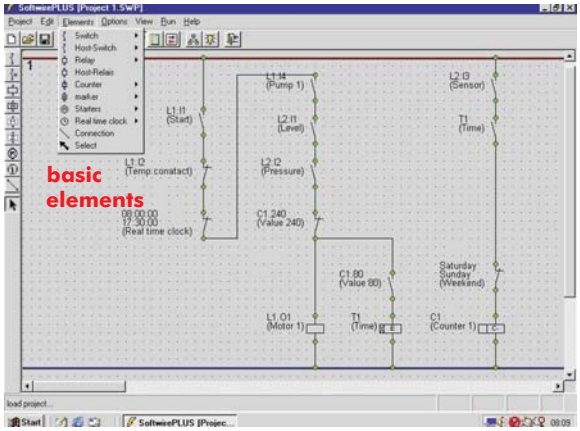
RTC with calendar function:
days of the week, days of the week, days, months, years, date, time



System configuration:
up to 31 I/O modules possible

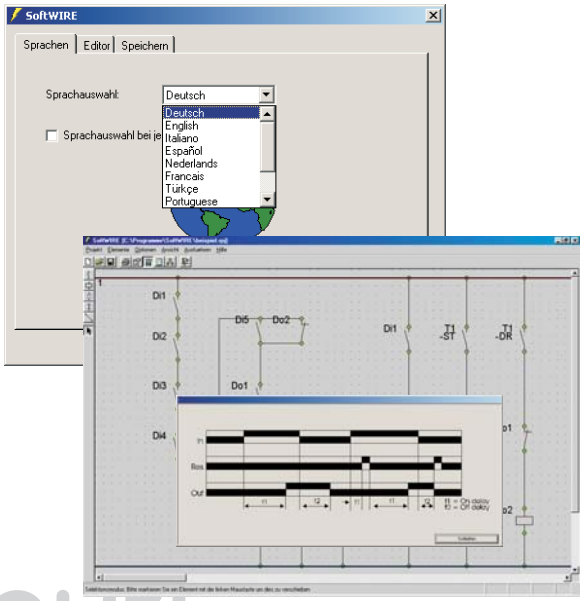


Simple-to-use CAD style ladder diagram software:
automatic addressing, simple editing of wiring scheme



SoftWIRE:

Programming without special software knowledge.
The compact module **HI-86** is programmed with SoftWIRE offering easy programming via wiring diagram.
A graphic symbol library for functions and settings are included in SoftWIRE software.
There is no limitation of program elements on a ladder rung and of the number of circuit paths.
SoftWIRE automatically generates a printable version of the project description and the module wiring diagram as well as a cross reference list.
SoftWIRE features simple language selection by



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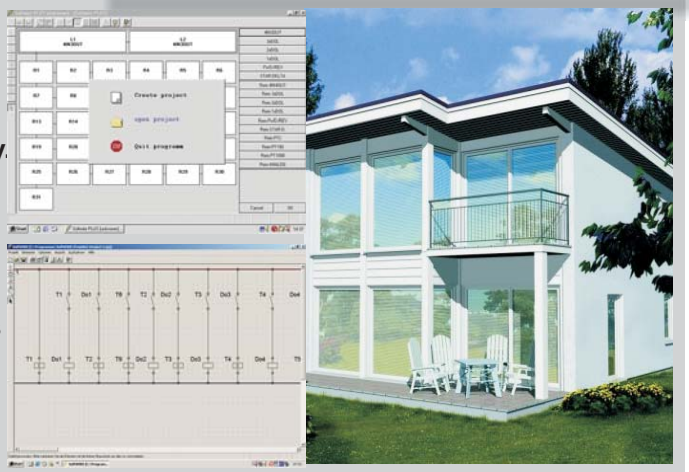
Bit processing

Programming by wiring ladder diagram, SLS-86

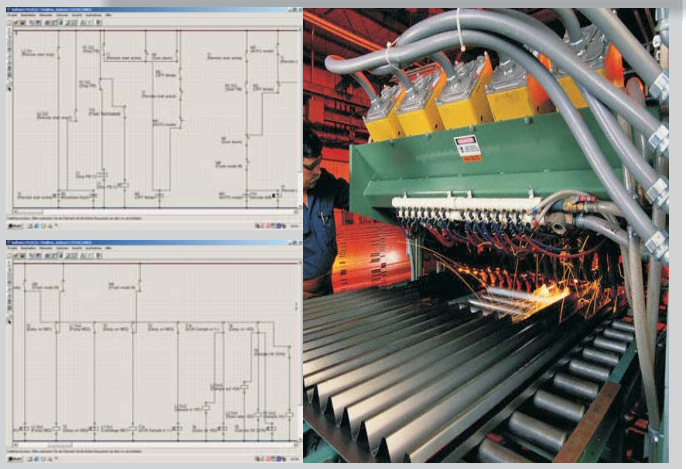
Building technology

- Easy programming by ladder diagram
- SLS-86 modules can be either locally or remotely connected via internal RS485 network in an easy and cost-effective way.
- Complete paper documentation is automatically created.
- Easy and cost-effective communication with up to 32 different extension modules over a bus length up to 600m.



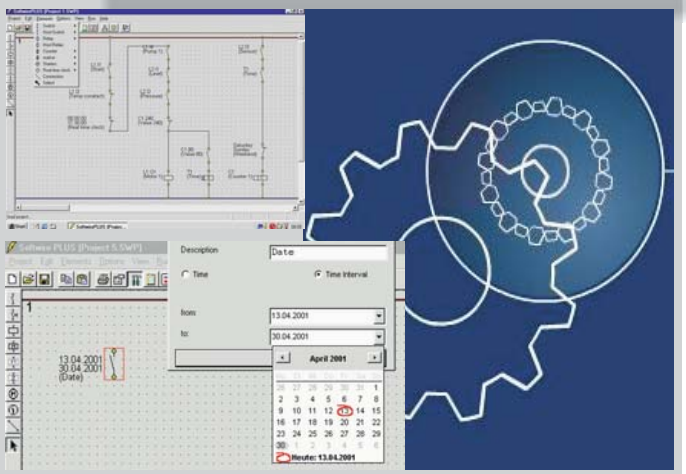
Transport system

- The modules can be either local (plug connections) or remote connected (CAT5 connection).
- Material handling control for complex applications processing large data volumes, e.g. analogue values, status of counters or time parameters.
- Changes of values directly on the PC or display.
- The modular structure allows flexible adaption to changes in the transport process.



Machine control

- Stepper motor control
- Up and down counters
- Preselection counters
- External fieldbus connectivity using the host input and host output functions.
- Optimised display layout and automated address allocation for easy handling.
- Direct coupling via integrated RS232 to PC or text display.



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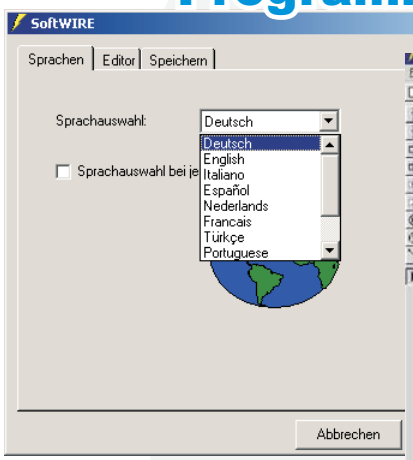
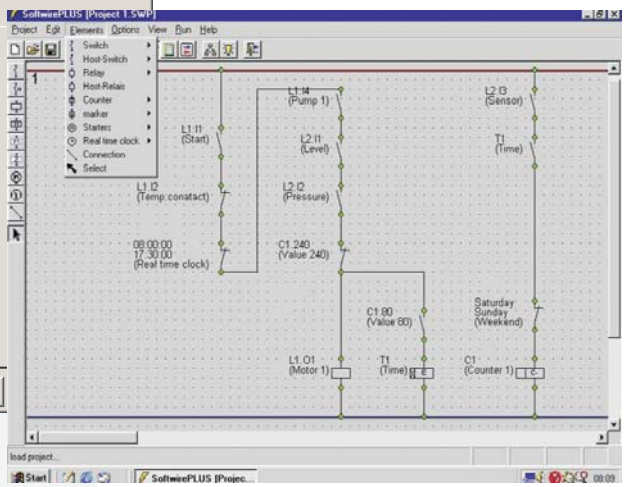
Compact module

HI-86 minimodule

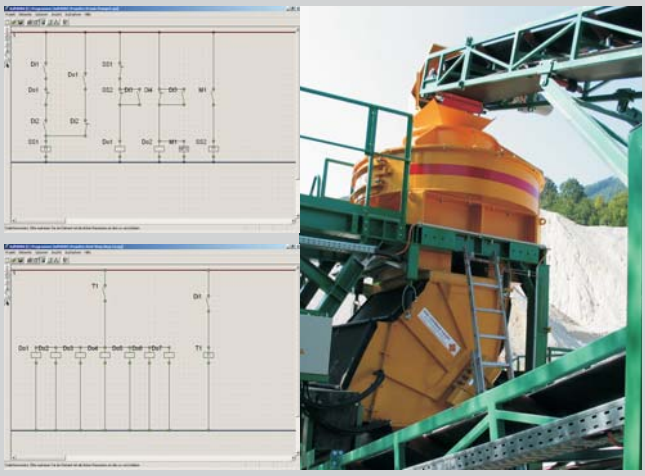
Programming with SoftWIRE





Machine control

- Easy programming via wiring diagram (ladder) with SoftWIRE.
- Manual settings can be adjusted easily without PC using the external potentiometers (2) located on the front plate.
- Simple documentation (printing).
- Ideal for controling pumps, heating , hydraulic systems, lighting...
- Language selection by mouse click: German, English, Italian, Spanish...



Process control

- Programming without PLC knowledge, suitable for small applications.
- Graphic symbol library for functions and settings. Simple tool bar “drag & drop” selection.
- Easy and flexible program exchange without PC is guaranteed with SIM memory card (2kB user-program memory).
- No limitation of program elements on ladder rungs or function blocks.
- LED indicators for inputs, outputs, supply voltage stop and error.

HI-86 compact module

8 in

6 out

DIN

RS232

CE

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HI-86 compact module & starter kit

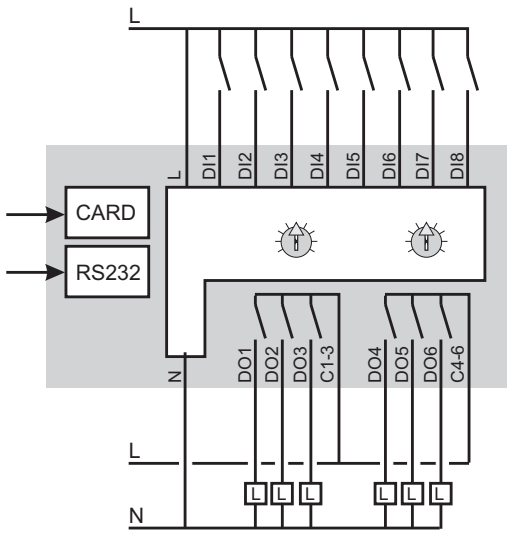
overview

- **compact intelligent relay module**
- **supply voltage 20-250V~= (10-40V= on request)**
- **8 digital inputs 20-250V~= (10-40V=)**
- **6 SPNO outputs max. 5A**
- **LED indicators for inputs and outputs**
- **2 potentiometers**
- **8kB user-program memory**
- **16 timers**
- **8 counters**
- **14 pre-programmable timing functions**
- **67.5mm DIN rail mount housing**
- **graphic programming with 'SoftWIRE' using wiring(ladder) diagram**

all you need to get you going - a starter kit:

- **HI-86 minimodule**
- **serial interface cable (programming cable)**
- **CD-ROM SoftWIRE**
- **SIM-Card**
- **input simulator**
- **manual**

The compact programmable (intelligent) relay **HI-86** is programmed with "SoftWIRE" wiring diagram and can be used in many fields. The **minimodule HI-86** has 8 digital inputs (20-250Vac/dc), 6 relay outputs (5Amp)and a 8kB user program memory. The RS 232 interface can be used for programming and monitoring. It also features a SIM-card for easy program copy and module to module data transfer.



specification

supply voltage	20-250V~=
power consumption	6W nominal
frequency range	48 - 63 Hz
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
expected life time	SPNO
mechanical	1 x 10^7 operations
electrical	1 x 10^5 operations
input specification	20 - 250V~=
	max. 1,3 mA
program memory	8kB
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	1,0 Nm
weight	200g
dimensions	67.5 x 85 x 75mm

*EN 60947-5-1 VDE 0435

ordering information

part no	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
HI-86	20-250V~=	6x SPNO	no	6x SPNO	yes	E
HI-86-R-Starter Kit	HI-86-R + SoftWIRE + download cable + manual + SIM-Card + input simulator					
HI-86-SIM	SIM-Card memory 2kB					
HI-Std-RS232	download cable					

* measurement input galvanically isolated from the power supply

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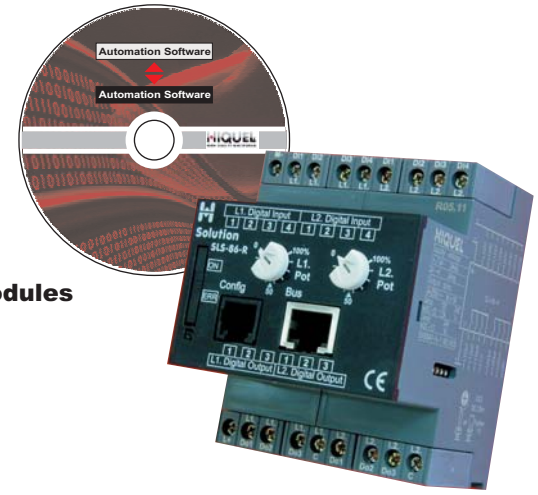
SLS-86 compact module & starter kit

overview

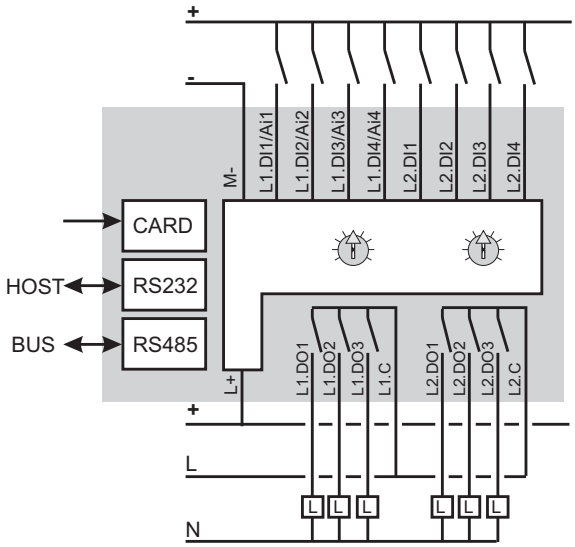
- system base module
- supply voltage 24V=
- 8 digital inputs 24V= (4 dual d/a 0-10V)
- 6 SPCO outputs max. 5A
- RS232 interface for programming/monitoring
- RS485 interface to connect up to 31 SLS-I/O modules
- LED indicators for inputs and outputs
- 2 potentiometers
- 8kB user-program memory
- 32 timers, 32 counters
- real time clock (RTC) with calendar function
- 67.5mm DIN rail mount housing
- graphical programming with 'SoftwirePLUS' by wiring diagram



all you need to get you going - a starter kit:

- SLS-86-R 24V=(base module)
- serial interface cable (programming cable)
- CD-ROM SoftwirePLUS
- SIM-Card
- input simulator
- manual

The modular intelligent relay **SLS86** is programmed with SoftwirePLUS andcan be used in many fields including **industrial control, automation,** and **building management.**
The **base module SLS 86** has 8 digital inputs (4 dual digital or analogue), 6 relay outputs, and a 8 kB user program memory with 64kB internal flash and a SIM-card for program copy and module to module data transfer as well as an integrated real time clock.



Specification

supply voltage	24V= ±10%
power consumption	1W nominal
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
Ue DC-13 photomos	max. 60V~=/2A
expected life time	SPNO
mechanical	1 x 10^7 operations
electrical	1 x 10^5 operations
input specification	24V= max. 5 mA
program memory	8kB
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	1,0 Nm
weight	210g
dimensions	67.5 x 85 x 75mm

*EN 60947-5-1 VDE 0435

Ordering information

part no	supply	input	inp. galv. iso.	output	outp. galv. iso.	housing types
SLS-86-R	24V=	8x 24V=	no	6x SPNO	yes	E
SLS-86-S	24V=	8x 24V=	no	6x photomos	yes	E
SLS-86-R-Starter Kit	SLS-86-R + SoftwirePLUS + download cable + manual + SIM-Card + input simulator					
SLS-86-SIM	SIM-Card memory 8kB					
SLS-86-BUS	bus termination for external I/O modules					
SLS-Std-RS232	download cable					

* measurement input galvanically isolated from the power supply

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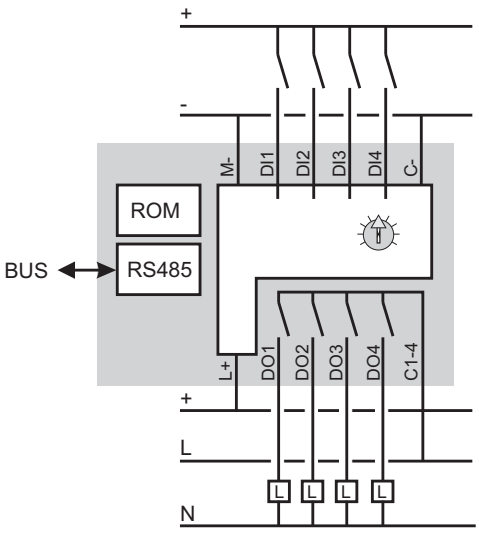
SLS-D

overview

local

remote

- **digital I/O expansion module**
- **supply voltage 24V=**
- **4 digital inputs 24V=**
- **4 outputs**
  - **SPNO 230V~= max. 5A**
  - **or transistor (PNP) 24V= max.800mA**
  - **or photomos 60V~= max.2A**
- **LED indicators for inputs and outputs**
- **RS485 interface**
- **1 potentiometer**
- **pre-programmable timer functions**
- **45mm DIN rail mount housing**



specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
expected life time	SPNO
mechanical	$1x10^7$ operations
electrical	$1x10^5$ operations
output transistor spec.	max. 800mA 24V= PNP
output photomos spec.	max. 60V~=/2A
input specification	24V=
	min. 5 mA
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-10 to +55 °C non condensing

*EN 60947-5-1 VDE 0435

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-DR-C	local	24V=	4x 24V=	yes	4x SPNO	yes	C
SLS-DR-D	remote	24V=	4x 24V=	yes	4x SPNO	yes	C
SLS-DT-C	local	24V=	4x 24V=	yes	4x trans. PNP	no	C
SLS-DT-D	remote	24V=	4x 24V=	yes	4x trans. PNP	no	C
SLS-DS-C	local	24V=	4x 24V=	yes	4x photomos	yes	C
SLS-DS-D	remote	24V=	4x 24V=	yes	4x photomos	yes	C

* measurement input galvanically isolated from the power supply

X01.00

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SLS-D..-16A

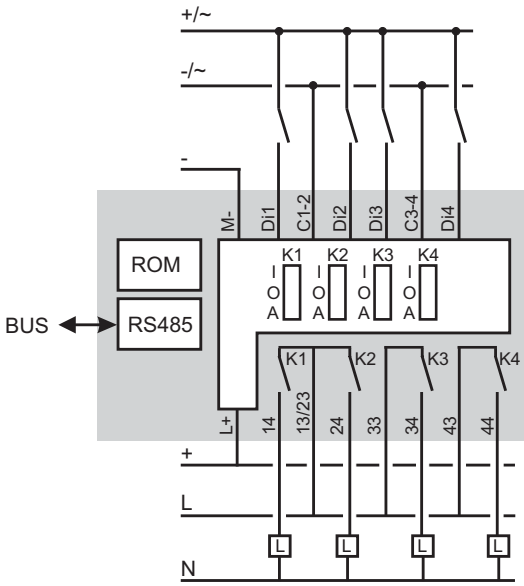
overview

- digital I/O expansion module
- supply voltage 24V=
- 4 digital inputs 24V= or 230V~
- 4 SPNO outputs 250V~ max. 16A
- LED indicators for inputs and outputs
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 67,5mm DIN rail mount housing

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output relay specification	max. 16A 250V~
Ue/Ie AC-15	120V/3A 240V/3A
Ue/Ie DC-13	24V/1,5A
expected life time	SPNO
mechanical	$1x10^7$ operations
electrical	$1x10^4$ operations
input specification	230V~ / 24V=
	min. 1 mA / min. 3mA
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55 °C non condensing

*EN 60947-5-1 VDE 0435



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-DRR-16A-C	local	24V=	4x 230V~	yes	4x SPNO	yes	E
SLS-DRR-16A-D	remote	24V=	4x 230V~	yes	4x SPNO	yes	E
SLS-DR-16A-C	local	24V=	4x 24V=	yes	4x SPNO	yes	E
SLS-DR-16A-D	remote	24V=	4x 24V=	yes	4x SPNO	yes	E

* measurement input galvanically isolated from the power supply

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SLS-8DI

overview

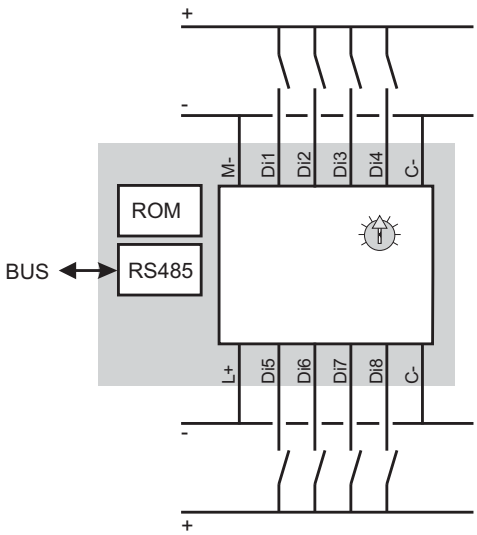
local

remote

- **digital input expansion module**
- **supply voltage 24V=**
- **8 digital inputs 24V=**
- **LED indicators for inputs**
- **RS485 interface**
- **1 potentiometer**
- **pre-programmable timer functions**
- **45mm DIN rail mount housing**

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
input specification	24V=
	min. 5 mA
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-10 to +55 °C non condensing



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-8DI-C	local	24V=	8x 24V=	yes	-	-	C
SLS-8DI-D	remote	24V=	8x 24V=	yes	-	-	C

* measurement input galvanically isolated from the power supply

X01.00

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SLS-8D

overview

- digital output expansion module
- supply voltage 24V=
- 8 outputs

SPNO	230V~=	max. 5A
or transistor (PNP)	24V=	max. 800mA
or photomos	60V~=	max. 2A

- LED indicators for inputs and outputs
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

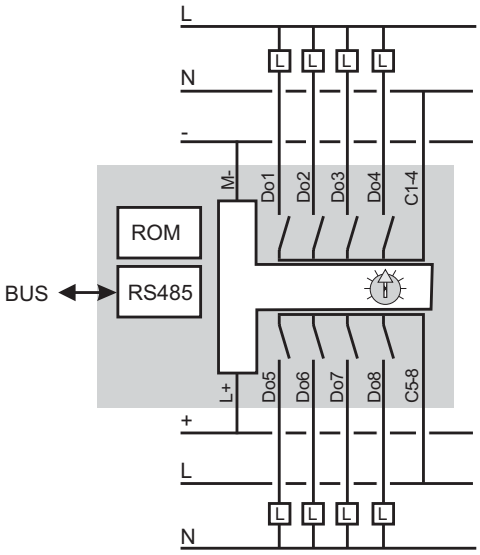
local

remote

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
expected life time	SPNO
mechanical	$1x10^7$ operations
electrical	$1x10^5$ operations
output transistor spec.	max. 800mA 24V= PNP
output photomos spec.	max. 60V~=/2A
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	1,0 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55 °C non condensing

*EN 60947-5-1 VDE 0435



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-8DR-C	local	24V=	-	-	8x SPNO	yes	C
SLS-8DR-D	remote	24V=	-	-	8x SPNO	yes	C
SLS-8DT-C	local	24V=	-	-	8x trans. PNP	no	C
SLS-8DT-D	remote	24V=	-	-	8x trans. PNP	no	C
SLS-8DS-C	local	24V=	-	-	8x photomos	yes	C
SLS-8DS-D	remote	24V=	-	-	8x photomos	yes	C

* measurement input galvanically isolated from the power supply

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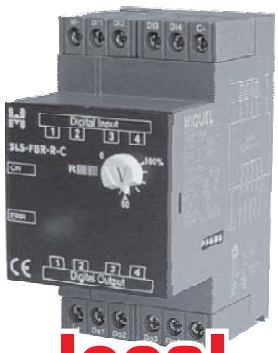
SLS-FBR

overview

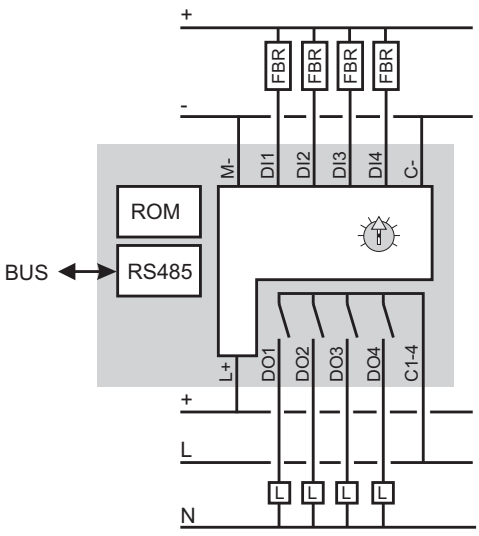


local

remote

FBR
room controller module
2- wire connection to
SLS-FBR module

FBR



- **digital room controller expansion module**
- **supply voltage 24V=**
- **4 FBR inputs 24V=**
- **4 outputs**
  SPNO 230V~= max. 5mA
  or transistor (PNP) 24V= max. 500A
- **LED indicators for inputs and outputs**
- **room temperature controller with day / night- and auto-switch, temperature registration and temperature correction**
- **RS485 interface**
- **1 potentiometer**
- **pre-programmable timer functions**
- **45mm DIN rail mount housing**

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output relay specification	max. 5A 230V~
Ue/Ie AC-15	120V/1,5A 240V/1A
Ue/Ie DC-13	24V/1A
expected life time	SPNO
mechanical	$1x10^7$ operations
electrical	$1x10^5$ operations
output transistor spec.	max. 500mA 24V= PNP
input specification	24V=
	min. 5 mA
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	140g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55 °C non condensing
	*EN 60947-5-1 VDE 0435

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-FBR-R-C	local	24V=	4x 24V=	yes	4x SPNO	yes	C
SLS-FBR-R-D	remote	24V=	4x 24V=	yes	4x SPNO	yes	C
SLS-FBR-T-C	local	24V=	4x 24V=	yes	4x trans. PNP	no	C
SLS-FBR-T-D	remote	24V=	4x 24V=	yes	4x trans. PNP	no	C
FBR	please refer to page 03:08						

* measurement input galvanically isolated from the power supply

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SLS-PTC

overview

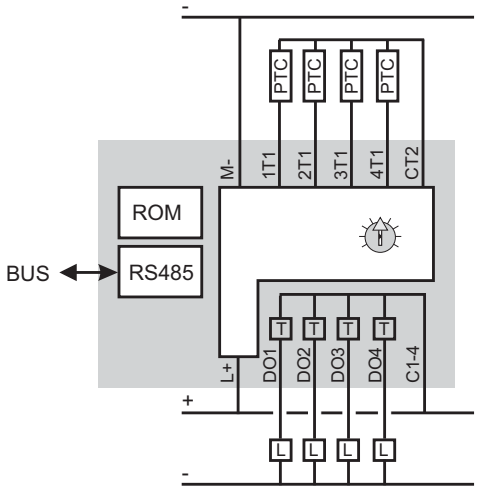
- **PTC (thermistor) input expansion module**
- **supply voltage 24V=**
- **thermistor motor protection**
- **4 PTC inputs for PTC-sensors DIN 44081**
- **4 transistor (PNP) outputs**
- **LED indicators for outputs**
- **RS485 interface**
- **1 potentiometer**
- **pre-programmable timer functions**
- **45mm DIN rail mount housing**

local

remote

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output transistor spec.	max. 800mA 24V= PNP
input specification	PTC sensor input DIN 44081
	max. 1.500 Ohm / 6 sensors
	trigger 3.100 Ohm ±10%
	reset 1.650 Ohm ±10%
	short 0 -20 Ohm ±10%
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55 °C non condensing



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-PTC-C	local	24V=	4x PTC	no	4x trans. PNP	no	C
SLS-PTC-D	remote	24V=	4x PTC	no	4x trans. PNP	no	C

* measurement input galvanically isolated from the power supply

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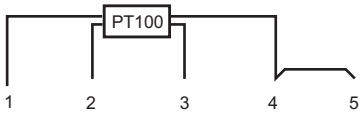
SLS-PT100

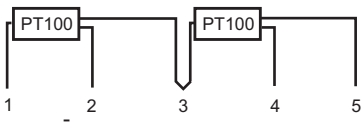
local

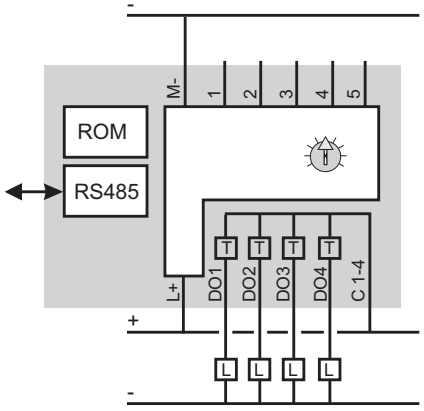
remote

1 PT100 4-wire connection



2 PT100 3-wire connection





overview

- **PT100 input expansion module**
- **supply voltage 24V=**
- **2 PT100 inputs**
- **4 transistor (PNP) outputs**
- **LED indicators for outputs**
- **RS485 interface**
- **1 potentiometer**
- **pre-programmable timer functions**
- **45mm DIN rail mount housing**

specification

supply voltage	24V= ±10%
power consumption	0,5W nominal
output transistor spec.	max. 800mA 24V= PNP
input specification	PT100 element
	-50°C to +300°C
	0,1°C repeat accuracy
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55 °C non condensing

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-PT100-C	local	24V=	2x PT100	no	4x trans. PNP	no	C
SLS-PT100-D	remote	24V=	2x PT100	no	4x trans. PNP	no	C

* The ordering information for various sensors you will find on page 03:23

* measurement input galvanically isolated from the power supply

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SLS-PT1000

overview

- PT1000 input expansion module
- supply voltage 24V=
- up to 4 PT1000 inputs
- 4 transistor (PNP) outputs
- LED indicators for outputs
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

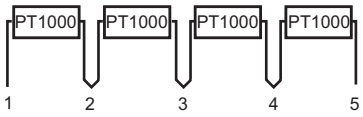
local

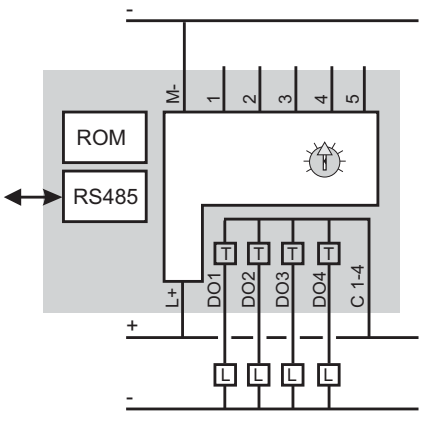
remote

specification

supply voltage	24V=
power consumption	0,5W nominal
output transistor spec.	max. 800mA 24V= PNP
input specification	PT1000 element
	-50°C to +300°C
	0,1°C repeat accuracy
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55 °C non condensing

4 PT1000 2-wire connection





ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-PT1000-C	local	24V=	4x PT1000	no	4x trans. PNP	no	C
SLS-PT1000-D	remote	24V=	4x PT1000	no	4x trans. PNP	no	C

* The ordering information for various sensors you will find on page 03:23

* measurement input galvanically isolated from the power supply

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HIQUEL® HIGH QUALITY ELECTRONICS

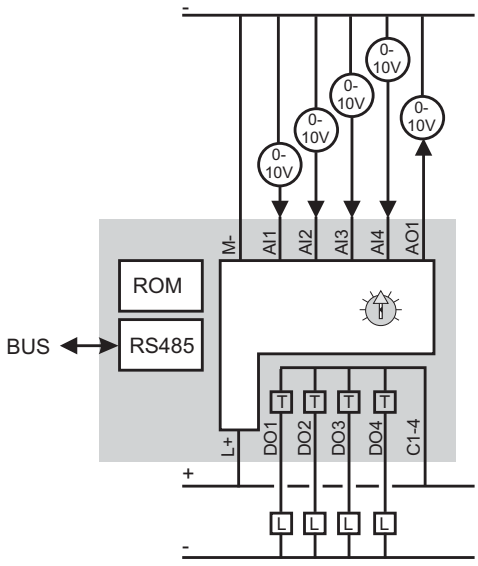
SLS-AU

overview

local

remote

- analogue I/O expansion module
- supply voltage 24V=
- 4 analogue inputs 0-10V
- 1 analogue output 0-10V
- 4 transistor (PNP) outputs
- LED indicators for outputs
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing



specification

supply voltage	24V=
power consumption	0,5W nominal
transistor output spec.	max. 800mA 24V= PNP
	max. 8kHz
analogue output spec.	0 - 10V= max. 2mA
resolution	10 bit
repeat accuracy	0,1%
precision	±0,5%
analogue input spec.	0 - 10V=
resolution	12 bit
input resistance	50kOhm
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55 °C non condensing

ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-AU-C	local	24V=	4x 0-10V	no	4x trans. PNP	no	C
SLS-AU-D	remote	24V=	4x 0-10V	no	4x trans. PNP	no	C

* The ordering information for various sensors you will find on page 03:23
* measurement input galvanically isolated from the power supply

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SLS-AI

overview

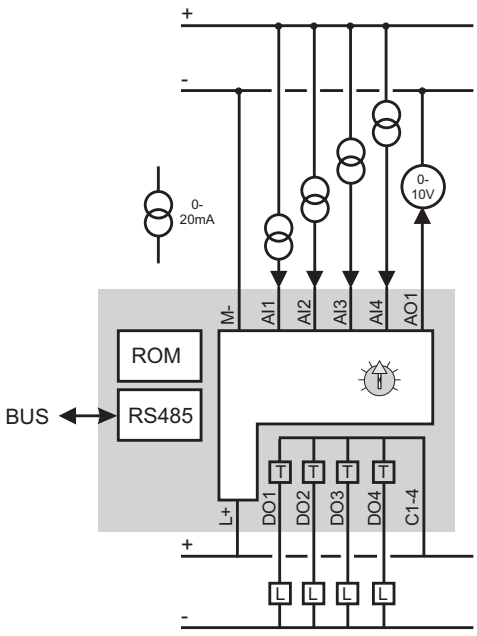
- analogue I/O expansion module
- supply voltage 24V=
- 4 analogue inputs 0-20mA
- 1 analogue output 0-10V
- 4 transistor (PNP) outputs
- LED indicators for outputs
- RS485 interface
- 1 potentiometer
- pre-programmable timer functions
- 45mm DIN rail mount housing

local

remote

specification

supply voltage	24V=
power consumption	0,5W nominal
output transistor spec.	max. 800mA 24V= PNP
	max. 8kHz
analogue output spec.	0 - 10V= max. 2mA
resolution	10 bit
repeat accuracy	0,1%
precision	±0,5%
analogue input spec.	0 - 20mA
resolution	12 bit
input resistance	250 Ohm
protection class	terminals IP20
	housing IP50
screws	pozidrive 1
screw tightening torque	0,6..0,8 Nm
weight	120g
dimensions	45 x 85 x 75mm
operating conditions	-15 to +55 °C non condensing



ordering information

part no	type	supply	input	inp. galv. iso.*	output	outp. galv. iso.*	housing types
SLS-AI-C	local	24V=	4x 0-20mA	no	4x trans. PNP	no	C
SLS-AI-D	remote	24V=	4x 0-20mA	no	4x trans. PNP	no	C

* The ordering information for various sensors you will find on page 03:23.

* measurement input galvanically isolated from the power supply

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